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THE PARTICIPATION OF YOUNG BOYS
IN SPORTS

by



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "Participation of Young Boys in Sports" submitted by Nancy Dora Ragan in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

The limited research literature on sports psychology, to date, deals mainly with the personality traits of the professional or superior athlete. Little research has been done with the young child at the age when he is initially offered the opportunity to participate in organized sports. This study is concerned with differences in personality dimensions of boys grouped according to their participation or non-participation in team sports. It is also concerned with such factors as parental interest in sports, socio-economic standing, intelligence, religious affiliation, and ordinal position in the family, and their relationship to participation in sports.

The final sample consisted of 170 nine year old boys from nine city schools, chosen randomly from the total elementary school population of a large Canadian urban centre. Data collected included scores on fourteen personality dimensions, and scores from each of the following sources: a Children's Questionnaire on sports participation, a Parent's Questionnaire, the Blishen Occupational Class Scale and school records for intelligence, ordinal position and religious affiliation. The data were subjected to an analysis of variance, a multiple discriminant analysis, and a step-wise regression analysis.

The results indicated that seven of the variables were related to participation in sports with a significance level

of .05. These significant variables were father's, mother's and a combination of both parents' interest in sports, intelligence, socio-economic level of the family, and the personality factors of Factor O (confidence versus apprehension) and Factor J (vigorousness, liking group action, versus individualism). The multiple discriminant analysis yielded a significant overall separation of the participating and non-participating groups at the .001 level, and indicated that the factors which contributed most to group separation were mother's and father's interest in sports, the socio-economic level of the family, and the personality factors of Factor O (confidence versus apprehension), Factor Q4 (relaxed composure versus tension) and Factor N (naturalness versus shrewdness). The regression analysis determined that the combination of variables having the highest predictive value were the socio-economic level of the family, the mother's and father's interest in sports, and the personality Factor O (confidence versus apprehension).

Interpretation of the findings indicates that there is a significant difference in the personality dimensions of sports participators and non-participators. Parental interest in sports, the socio-economic level of the family, and the intelligence of the child are significantly related to sports participation. These findings support some of the original hypotheses.

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CHAPTER I

INTRODUCTION

In any group of children, all of whom have an equal opportunity of joining an organized team sport, some choose to participate while others choose not to participate. Is there a basic difference in the personality of the participator and the non-participator? Robert Singer (1969) puts it this way: "Is it the matter of the chicken or the egg - is the personality profile the cause of or the result of athletic experience (p. 153)?" This is a question worthy of thought.

The literature to date on sports psychology has dealt mainly with the personality traits of the professional athlete, the superior athlete, and the high school athlete. Very little research has been done at the other end of the continuum - with the young child when he is initially offered the opportunity to participate in organized sports. It would be worthwhile to know whether at this early stage in his development, the participator has a different personality than the non-participator.

It is recognized that factors other than the child's personality may have a strong influence on his participation. Such factors as the culture and socio-economic level in which the child is living, the attitudes and interest of his parents and the child's health, intelligence and religion, may affect his participation. Children from a higher socio-economic level may have more opportunity to become involved in sports,

not only because of greater financial support, but also because of better health, and more parent-interest and parent-time to become involved with the child. On the other hand, the familial background of the lower socio-economic group may develop such personality traits as aggressiveness, competitiveness and independence, which may be determinants of sports participation.

There is general agreement among educators that properly supervised athletics can play an important role in the education of the child. The Educational Policies Commission (1954) states that:

Participation in sound athletic programs... contributes to health and happiness, physical skill and emotional maturity, social competence and moral values.

We believe that cooperation and competition are both important components of American life. Athletic participation can help teach the values of cooperation as well as the spirit of competition (p. 3).

In a society in which leisure time is becoming more available to all classes, it is important that each child have the opportunity of developing an interest in sports and the skill and ability to perform. Many children, if they do not become initially involved in sporting endeavors with their peers during their early school years, may increasingly withdraw from such activities.

Therefore, it seems relevant to examine the personality dimensions and other factors that may be determinants of sports participation. Some kind of factual research is needed to determine the reasons underlying participation and

non-participation in sports. This might give parents and educators some insight into why some children do not participate, and in what way they might give positive encouragement to such children to help them become involved in organized sports of their liking.

A more important use of this study could be to help the physical educator, the teacher and the parent to better understand their children, and to give them insight into the problems that may arise. Educators must recognize that many factors are involved in sports participation and should be aware of any correlation which might exist between personality dimensions and sports interest. They should recognize that if a child does not show such personality dimensions, then indeed he probably has other interests which they should encourage him to develop.

Sports Psychology is one of the younger disciplines within the larger area of psychology. Vanek and Cratty (1970) have identified three areas in which information is being collected: (1) the area of general motor behavior, (2) the psychological properties of the superior athlete, and (3) the social psychology of team and individual sports. It is hoped that this study will add to this body of information. In the writer's opinion, it is important to try to understand why a child initially chooses sports, what factors influence him in this choice, and what personality dimensions may play a part. As far as the writer is aware, there has been no work done in this area to date.

Some controversy surrounds the question of whether there is some kind of general personality trait pattern typical of athletes. Most of the research done has been on specific types of athletes, such as hockey players, swimmers, etc. The writer in this study has attempted to divide the sample of children used in the research into those who participate in sports and those who do not by measuring their activity in several sports. Any differences that may occur in the personality profiles of the two groups will then apply to sports participators in general, rather than to a participator of a specific sport. In other words, this method of study might more adequately answer the question: "Is there a typical sports personality?"

Participation in sports at the age of nine is essentially a social activity. Socialization, the process of acquiring behavior patterns and characteristics appropriate to one's own sex, family, social class, ethnic and religious group, begins very early, stemming from interactions with one's own family. Baldwin (1948) in his study appraising the home environment of pre-school children, summarizes his findings by suggesting that:

...the predominant effect of parent behavior upon the socialization of the pre-school child is to raise or lower his willingness and ability to behave actively toward his environment. Freedom and permissiveness in the home by not punishing his active explorations and his aggressive reactions to frustrations, permits the child to become active, outgoing and spontaneous. Freedom alone does not, however, actively encourage the development of spontaneity; a high level of interaction between the

parent and the child is required to push the child into activity, particularly of the inter-personal variety. The child's expressiveness must be elicited by the parent's spontaneous expression of warmth and emotionality...(p. 135).

Mussen, Conger and Kagan (1963) claim that identification is one of the most basic processes involved in socialization. Most boys tend to identify primarily with their fathers, and girls with their mothers. Thus, says Bandura (1964), the father can easily direct the son's behavior. He may mold a son's interests, hobbies, athletic participation, occupational choice and many other aspects of his social behavior.

This study was designed to measure some of these aspects of the child's socialization and to determine their importance in his participation in sports. Such factors as the socio-economic status of the family, their religion, the parent's attitude and interest in sports, the child's intelligence and his ordinal position in the family constellation were measured and their relative importance compared. The specific purposes of this study are the following: (1) to measure the personality dimensions of those children classified as sports participators, (2) to measure the personality dimensions of those children classified as non sports participators, (3) to compare the personality profiles of the two groups for any significant differences, (4) to measure the five other dependent variables involved in the study - the socio-economic level, parental interests, religion, intelligence and ordinal

position in the family, and (5) to determine the relationship of these variables to participation in sports.

Six hypotheses were generated in this research study. It was thought that there would be a correlation between certain personality traits and sports participation. Such factors as outgoingness, dominance, venturesomeness, vigorousness,¹ should appear to be more dominant in boys who participate in sports. In other words, it was expected that boys who participate in sports would be essentially different from boys who do not participate, and that this difference would be shown by a different personality profile for each group of boys.

Because of Bandura's work on modelling, and Baldwin's work on home environment, it was expected that there should be a high correlation between parental interests and activities in sports and their son's participation in sports.

One might also assume because of the relationship between child rearing practises (authoritarian versus democratic) and personality development, that there might be a negative relationship between religious boys and their participation in sports.

It was expected that there would be a high correlation between socio-economic status and sports participation. The rationale for this thinking is based on the fact that in

1. These characteristics are Factors A, E, H, and J from the Children's Personality Questionnaire.

today's competitive, material-oriented society, 'to belong' costs money. Particularly in sporting and recreational endeavors, equipment has become costly and prestigious.

One questions whether there would be a correlation between the intelligence and the ordinal position of the child and his sports participation. This relationship is open to much discussion and it was hoped that this study might help in clarifying these questions.

To answer the various questions posed above, this study examined 247 nine year old boys from nine city schools, chosen randomly from the total elementary school population of the Edmonton Public and Separate School Systems. The boys were given questionnaires on Sports and Other Interests, and the Children's Personality Questionnaire to complete. Parents' Questionnaires were sent to each home to be filled in by both the mother and father, and returned to the school. Because of restrictions imposed on the study, the original sample was reduced to 137 boys. Those dropped from the sample were because of the following reasons: (a) Parent Questionnaires were not returned, (b) neither parent was born in Canada, (c) the child had a medical problem, or (d) the child was over or under the required age of nine.

The final total of 137 boys were rated as sports participators or non-participators, and the following data collected for each: scores on the Children's Personality Questionnaire, intelligence score, socio-economic rating, religion and ordinal position. The data were analyzed by the process of analysis of variance, multiple discriminant

analysis, and stepwise regression analysis.

This chapter has provided an orientation to the nature and scope of the study, the reasons for its conception, and the methods by which it was carried out. A discussion of the hypotheses that were generated by the study was presented.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

Little, if any research has been done on the immediate questions posed by this thesis: What are the personality factors of the child when he first actively chooses to be included in teams engaged in sport? What other factors are determinants of this choice? Because of the complexity of the topic, the study has of necessity crossed the boundaries of several disciplines, most noticeably those of educational psychology, physical education, and sociology.

In this chapter, personality in its broadest sense is reviewed. Those factors which are intimately interwoven in the forming of personality and which are of particular relevance to this study, such as motivation, socialization in the home, intelligence and physique of the child, and his ordinal position in the family constellation are examined carefully. Other factors also considered important in personality formation, such as the socio-economic status, ethnic background and religious affiliation of the child are reviewed. A third section includes a summary of some of the research already done on the personality dimensions of sports participants.

The term 'participation in sports' can be confusing and confounding. In the literature, there are many definitions given for the meaning of sport. Sabora and Mitchell (1961) define it this way:

The term athletic sport (or athletics) refers to competitive physical activities involving accepted rules of play and a system of scoring for determining winners from among two or more contesting individuals or teams (p. 162).

Sapora's definition is similar to that of the Education Policies Commission (1954) statement as quoted by Sapora which reads:

Sports are selected activities which usually require a great deal of physical movement and the use of specific equipment and areas. Examples are golf, tennis, hunting...and similar activities. Athletics and sports, though often confused, are not synonymous; athletics is one aspect - the competitive one - of the many kinds of sporting activities (p. 462).

Although play and sport are not considered synonymous, the remarks made by Sapora and Mitchell (1961) on the role of habit in play are worth repeating. They explain that the individual differences in play are caused by habit. They claim that although heredity may account for one individual having certain capacities which another may lack, and although native physical ability may vary, people play at different activities largely because they have been conditioned differently - they possess different habits and attitudes, and thus they have different motives or desires.

Further on Sapora summarizes his theory:

The point is made...that the play activity of the organism is the result both of pressure from within in the form of physiological urges and vague inborn impulses, and pressure from the social environment from which the individual acquires habits, attitudes and sentiments. The latter is the significant factor in defining play forms: one's habits and

attitudes predispose him to certain types of activity and being alive and seeking self-expression, he engages in them and tends to repeat them as long as they bring satisfaction or pleasure (p. 96).

It is interesting to proceed further from this viewpoint to that of Roberts (1962) and Sutton-Smith (1964) in their research on child-training and game involvement. Their research shows that specific types of games (games of physical skills, games of strategy, or games of chance) can be associated with specific child-training variables (achievement, obedience, or responsibility training, respectively). The researchers conclude that as children play games analogous to their success styles, it would seem reasonable to believe that the game categorizations correspond to each boys' style of competitive behavior. Games as well as competitive styles reflect underlying cognitive attitudes that emerge in association with specific child-training techniques. It is suggested that being in conflict, the child becomes interested in the game because it provides a means of assuaging conflict.

By combining the theories of Sabora and Sutton-Smith, one might gain insight into why children participate in sports. This might be explained in the following manner: Every individual has physiological urges (energy, etc) and pressure from social environment which predispose him to a variety of play activities. Dependent on the type of home training environment in which he is raised, his choice of game activity will be physical skill games (sports), strategy games, or chance games. The child chooses the kind that will

'soften' the conflict which he feels in his home environment.

Cofer and Johnson (1960) feel it should be possible to trace a pattern of change in the psychological significance of play, exercise and sports as transition is made from childhood to adulthood. Play would have different meanings at different age levels. Thus, to a small child, a sport may be a means to an end; in a ten year old, it may be a test of skill and endurance; and to the adult a relaxed end in itself.

Sapora (1961) has classified play in three ways: (1) by motor movements used, (2) by motives and interests of the person, and (3) by patterns of organization of the play. Kenyon (1968) developed a conceptual model for characterizing physical activity as a socio-psychological phenomenon. It was based on the assumption that physical activity could be reduced to six levels, each of which was perceived to have an instrumental value for the individual. The six levels thought to represent the value of physical activity are: (1) as a social experience, (2) for health and fitness, (3) for the pursuit of vertigo, (4) as an aesthetic experience, (5) as catharsis, and (6) as an ascetic experience.

Two other investigators, Clarke (1956) and White (1955) emphasize that physical activity is basically due to non-psychological variables of parental differences in wealth, and ecological and group opportunity.

Vanek and Cratty (1970) hypothesize that the need

for physical activity and the need for achievement are present in all individuals to varying degrees. They go on to say that the degree to which an individual seeks and needs motor activity depends upon age, environment and his general style of life. It is likely that environmental factors determine just what sport an athlete chooses, yet at the same time, the strength of the motive (need for activity) determines the choice of some type of vigorous activity. Early success and failure experiences determine whether or not a given activity is pursued during childhood and adolescence.

From the literature so far reviewed, a common feeling among the writers seems to be that the social environment of the child has a great deal of influence on his choice of activities.

PERSONALITY

Investigators in the field of personality agree that there are several theories of personality, each with a difference in emphasis but each having a core of agreement in considering personality as an integration of traits which can be investigated and described in order to render an account of the unique quality of the individual.

In this study, it is relevant to discuss only those personality theories that relate to motivation. Hall (1957) makes the point that those theories which are usually referred to as theories of motivation are also theories of

personality, although the reverse is not always true. Cattell's factor-analytic theory is presented in more depth because the C. P. Q. personality measurement used in this study is based on his theory.

Cofer and Johnson (1960) have this to say about personality dynamics:

It is probably a fair generalization that most of the current conceptions of the nature of personality agree in viewing personality as an organization of enduring and characteristic ways of perceiving, feeling, and acting which have arisen in the service of motives. This is to say that personality is regarded as a stable product of the interactions of the motivated individual with his environment and that the manifestations which we call personality are highly developed means by which the individual, consciously or unconsciously, copes with the motivations which have impelled or do impel him in his dealings with his social environment. ...such a conception makes of motivation the primary concept and of personality an expression of motivations; by reading the expressions of personality we may be able to understand the underlying motivations. This is what is ordinarily meant by a dynamic conception of personality (p. 527 - 528).

Murray (1964) states that there is general agreement that a motive is an internal factor that arouses, directs and integrates a person's behavior. It is not observed directly but is inferred from his behavior or simply assumed to exist in order to explain his behavior. Allport (1965) explains that motivation is the 'go' of personality but that psychologists are not agreed in their accounts of what internal conditions induce action and thought.

Investigations by Vanek and Hosek (1960) in which the motives of over 600 athletes were studied, resulted in a model which attempts to depict primary (physiological and structural), secondary (psychological), and social (socio-cultural, economic, and unique background) motives that impinge upon sports performance.

Professor Roudik, the Russian sports psychologist has also derived a schema with which to explain the motivation of superior athletes. The beginning athlete has only a diffuse interest in sport activities in general and does not concentrate upon a single one of them in which to achieve excellence. The early stages of development are marked by the direct motives - pleasure in movement, mastery over difficulty, aesthetic satisfaction in movement, the overcoming of fear of failure, pleasure from competition, and pleasure of winning. During the formative years, the environment will impose the sport upon the child. The second developmental level is the stage of specialization in one sport.

Cofer and Johnson (1960) suggest that the dominant viewpoints on motivation today are based on either the number of basic or primary motives they postulate, or the extent to which drive or tension reduction is the prime basis for control of action. They outline four classes of motivation:

1. Motivation as a central concept, with a purposive function. Here, behavior is regarded as

purposive, intentional, directed or guided as an outgrowth of the active motive itself. Children's play is seen as a way of overcoming anxiety and obtaining mastery over fears by experiencing threats over and over again in games. Such theorists are Freud and Murray.

2. Motivation as a coordinating concept, with energizing and rewarding functions. Here, motivation plays a central role in the acquisition of habits, but habits themselves, not the motives channel the behavior. Participation in sport is explained by learned drives. Many children learn in our culture to be motivated to engage in these activities. Hull, Dollard and Miller, and Hall and Lindzey represent this conception of motivation.
3. Motivation with the emphasis on curiosity, stimulation and manipulation. The research studies of Hebb, Montgomery and Harlow have tried to disprove the notion of tension reduction as the rewarding condition for learning. Their experiments have demonstrated that there is a necessity for external stimulation, curiosity, and exploration. To explain exercise and sport, this group would explain the general need for activity, exploration or stimulation.
4. Motivation with the emphasis on self-actualization.
Self-actualization is the assertion that man must

be free to express himself, his potentialities, and is prominent in theorists like Allport, Rogers, and Maslow. Maslow suggests that there is a hierarchy of human motives or needs. The order of these needs from lowest to highest is: physiological (hunger), safety (security), love and belongingness, esteem, and at the top of the hierarchy is the need for self-actualization. For higher needs to appear, there must be some measure of satisfaction at the lower levels. Maslow would interpret most participation in sports and exercise as due to lower motives, defenses, etc., for he has been unable to locate any young people who could be classed as self-actualized.

The motivation theories of classes three and four are quite different than the first two - they are relatively recent in origin, they assume multiple motives, they reject tension reduction as the sole motivational principle, and they make motivation less a fundamental construct.

One of the main purposes of the present study is to measure the personality dimensions of the two groups studied. The instrument used (Children's Personality Questionnaire) was devised by Cattell and based directly on his factorial theory of personality. Theories of personality based upon factor analysis reflect current psychological emphasis upon quantitative methods and in turn, are reflected in large numbers of specially designed personality studies.

Hall and Lindzey (1957) claim that whatever the shortcomings of factor theories may be, it is clear that their emphasis upon explicitness and adequate standards of measurement represents a very healthy influence. The style and mode of approach of theorists like Cattell will have an impact upon the way in which future theory will develop.

Raymond Cattell's theory represents the most comprehensive attempt yet made to bring together and organize the major findings of factor analytic studies of personality, state Hall and Lindzey (1957). The core of Cattell's position revolves around the results of factor analysis, from which he derives the variables which he considers most important in accounting for human behavior.

The trait is by far the most important of Cattell's concepts. For him, a trait is a 'mental structure', an inference that is made from observed behavior to account for regularity or consistency in this behavior. He classifies them into surface traits and source traits (the latter identified by means of factor analysis). In identifying the source traits, Cattell's basic procedure is to secure a large number of behavioral ratings of different dimensions for a group of individuals and then subject these sets of scores to a factor analysis. Thus he extracts the variables that underlie or contribute most of the variability to the large number of initial measures. As a result of his investigations, Cattell has been able to develop a number of objective personality tests for measuring the principal

source traits (Cattell, 1946).

Cattell has also made efforts to give adequate emphasis to socio-cultural determinants of behavior by using the same approach as he used in the study of the individual personality. Delineation of the basic variables through the use of factor analysis occupied a crucial introductory step.

Research that he has done (Cattell, 1955) applies the fruits of factor analytic study in investigating the hereditary determinants of personality. He wished to find out 'how much' influence is exerted by heredity relative to the influence of environmental factors. He used a multiple variance procedure which permitted the investigator to make inferences about the relative contributions of hereditary and environmental factors to specified dimensions. This study illustrates Cattell's ingenuity in approaching problems that have been a source of concern. Once the variables of personality have been identified, it is then possible to approach a host of significant problems that rest upon or assume the isolation of such variables.

Cattell's tests (16 P.F., C.P.Q., H.S.P.Q., and E.S.P.Q.) therefore, deal with psychologically important traits of proved functional unity and relevance to general personality theory.

Children live in a socio-cultural matrix, and therefore, are surrounded by many factors which may influence their personality development and their choice of activities. The family, particularly as represented by the parents, is considered the major socializing agent. Mussen (1970) claims that socialization - the process of acquiring behavior patterns and characteristics appropriate to one's own sex, family, social class, ethnic and religious groups - begins very early. The child's first learning experiences, stemming from interactions with members of his family, particularly his mother, may have immediate or enduring impact on the development of his personal characteristics, motivations, social behavior and emotional adjustment. Socialization is accomplished by means of direct rewards and reinforcements, by parents and others, for appropriate acceptable responses, and punishment for inappropriate behavior. Thus, it is in the family that one would expect to find the reasons for individual differences in children.

The literature on the relationship of parental attitude and home environment to the personality development of the child reflects the paucity of experimental evidence available. Certain variables in parent behavior have been and continue to be investigated to discover their importance upon the developing personality. Stendler (1964) claims that such factors as warmth versus hostility, democratic versus authoritarian methods of control, and restrictiveness versus permissiveness appear to have predictable though

complex effects.

Baldwin (1949) summarizes the results of one of the earliest large scale attempts to weigh the effects of parental behavior - the Fels Research Institute studies, conducted in the 1940's with nursery children, on a longitudinal basis. By means of factor analysis, three important variables in home climate were identified: democracy, acceptance of the child (warmth), and indulgence. Children from homes rated as high in democracy were found to be more socially outgoing, though the outgoingness might be of the aggressive as well as the friendly kind; more likely to enjoy high status in their group and show more curiosity and constructiveness, participating actively in school events, expressing aggression and generally asserting themselves. Indulgent homes appeared to foster the development of the opposite kinds of personality characteristics. Indulged children had a lower social status with their peers, were relatively inactive, unaggressive, lacking in originality, were apprehensive about participating in physical activities, and lacked skill in large muscle activities. Baldwin concludes that democratic parents stimulate the child so that he engages in more peer activities, is more successful with these activities and is better able to contribute original creative ideas to the group.

In a study done by Baldwin in 1948, he states that there is another aspect of home environment - general

activity level - which is closely related to the problem of socialization. He says that if the child is allowed freedom and permissiveness in the home, this freedom permits the child to become active, outgoing and spontaneous. But Baldwin claims that freedom alone is not enough - a high level of interaction between the parent and the child is required to push the child into activity.

Mussen (1970) goes on to say that not all aspects of the child's socialization and personality development can be explained as functions of simple reward learning. Many complex behavior patterns are acquired by means of identification with parents or other models. Identification is a fundamental mechanism of personality development and socialization. By identifying with his parents, a child acquires many of their characteristics and important ways of behaving, thinking and feeling. As his social world expands, he finds other identification models among his peers.

Mussen (1970) claims that two conditions must be present to facilitate the development of identification with the model: (1) the child must want to possess some of the model's attributes, and (2) he must have some basis for believing that he and the model are similar. Most boys tend to identify with their father, and girls with their mother. This general trend is due to the fact that (1) the social environment encourages the child to model himself after the same sex parent, and punishes him for adopting the

traits of the opposite sex parent, and (2) the child perceives a greater similarity between himself and the parent of the same sex.

Three variables have frequently been hypothesized by different theorists as affecting identification - parental power, parental warmth and parental aggression. Some psychologists say that the child identifies with the parent because he determines both the rewards and punishments the child receives; learning theorists focus on the effects of warmth and nurturance in the development of identification; Kagan (1958) hypothesizes that the child is motivated to identify with his parents because he perceives many important differences between his own and his parents' abilities, powers, and privileges. Through identification, the child begins to feel he shares his parents' mastery of the environment. He says the two important goal states the child desires to command through identification are: (1) a feeling of power or mastery over the environment, and (2) love and affection. The child identifies with the more powerful parent and the one who is perceived to command important sources of gratification.

Much research has been done on identification. Payne and Mussen (1956) report in their study on adolescent boys that boys who perceived their father as rewarding were more highly identified with the father than boys who pictured their fathers as non-rewarding. Boys who feel comfortable in their relationship with their parents adopt more of their father's

behavior and attitudes than boys who experience less favorable parent-child relationships. Boys who are closely identified with their fathers tend to have more characteristically masculine attitudes than their peers who are less highly identified with their fathers. Boys with dominant and 'masculine' mothers, tended to be poorly identified with their fathers. Mussen and Distler (1960) in their study found that young boys identify strongly with their fathers, and thus acquire appropriate sex typed responses if their relationships with their fathers are rewarding, warm and affectionate. These fathers play a greater role in their son's upbringing, doing more of their son's caretaking and having greater responsibility for child rearing policies.

Sears (1965) conducted a study with nursery children on child rearing antecedents of identification - dependency, aggression, adult role, gender role, guilt and resistance to temptation. These behaviors were selected as variables because they seemed to be the major aspects of personality influenced by the process of identification. The report concluded that: (1) children of both sexes initially adopt feminine - maternal ways of behaving; (2) the boys adopt a cognitive map of the male role at some point in their first three or four years and begin to shape their own behavior toward that role. To the extent that he has male models available (the father), the boy will be efficient in this shaping; and (3) masculinity is associated with freedom of expression and with parental non-punitiveness; femininity

is associated with the opposite.

Mussen and Distler (1959) in a study of thirty-five five year olds supported the hypothesis that a boy will be most likely to identify with the father if the latter is perceived as strong, powerful and nurturant.

Bandura and Walters (1964) refer to investigations done to determine modelling effects, and have suggested that identification and imitation are synonymous since both encompass the tendency for a person to match the behavior, attitudes or emotional reactions exhibited by the models. The theory of imitation propounded by Miller and Dollard has been widely accepted. According to this theory, the necessary conditions for learning through imitation include a motivated subject who is positively reinforced for matching the correct responses of a model during a series of initial random trial and error responses. This theory does not account for imitative behavior for which reinforcers are not delivered to the model or the observer.

Relevant research by Bandura and Walters (1964) demonstrates that when a model is provided, patterns of behavior are typically acquired in large segments or in their entirety, rather than through a slow gradual process based on differential reinforcement. The role of models in transmission of novel social responses has been demonstrated most extensively in lab studies on aggression. Children who have been exposed to aggressive models respond to subsequent frustration with considerable aggression, much of which is

imitative, whereas equally frustrated children who have observed models displaying inhibited behavior, are relatively non-aggressive, and tend to match the behavior of the inhibited model.

Bandura, Ross and Ross (1961) studied children who were exposed to aggressive and non-aggressive models and then tested for the amount of imitation learning in a new situation in the absence of the models. The results showed that the subjects exposed to aggressive models reproduced a good deal of aggression resembling the models.

The influence of a model is partly dependent on the consequences to the model, i.e. children who observe an aggressive model who is rewarded, will display more imitative aggression than children who see a model punished for aggression. In addition, models who are rewarding, prestigious or competent, who possess high status and who have control over rewarding resources are more readily imitated than are models who lack these qualities. The same characteristics that enhance or reduce the extent to which a model influences an observer, contribute to the development of adult-child similarities of behavior.

Maccoby (1959) proposes that a child acquires a repertoire of actions by practising covertly the actions characteristic of the adults with whom he interacts most frequently and who control the resources that he needs. Thus, she implies that most children will behave just as their parents do.

Bandura (1964) concludes that the social influence process cannot be accounted for entirely in terms of the effects of the presentations of parents and other models. Once the imitative responses occur, the consequences to the child will largely determine whether these responses are strengthened, weakened or inhibited.

Hetherington and Frankie (1967) working on the hypothesis that the same variables thought to be significant in identification should be salient in the child's imitation of the parent, investigated the effects of parental warmth, dominance and conflict on imitation of parents by boys and girls. They wished to test the hypothesis that a child's defensive identification with a hostile dominant parent is most likely to occur in a stressful home in which both parents are lacking in warmth. They concluded that there was ample evidence to suggest that warmth and power do affect identification. These results are congruent with those of past studies which have found that both parental warmth and power are important in the identification of girls, and paternal dominance is important in the identification of boys. Some support was found for identification with the aggressor under very restricted conditions involving high stress and low warmth in both parents. The age three to five is an important transition period in identification for boys whose identification must shift from mother to father. Hetherington concludes that paternal dominance plays an important role in this shift.

To conclude a survey of this type in which the importance of the parents and the home environment to personality development has been shown, it is interesting to quote a provocative statement made by Thomas, Chase and Birch (1970) as a result of their long-term study on personality development.

Children do show distinct individuality in temperament in the first weeks of life, independently of their parents' handling or personality style...the original characteristics of temperament tend to persist in most children over the years (p. 104).

Intelligence or mental capacity is identified as one of the fourteen independent dimensions that constitute the total personality (Cattell, 1965). Shaw and Cordts (1960) survey the literature on the relationship of athletic participation to academic performance. There are just about as many authors who conclude that athletes are academically superior to non-athletes as there are who believe there is no difference, or that non-athletes are superior. Although no research has been concerned with the possible relationship of physical fitness and academic performance, what has been done suggests that a positive relationship may exist. The best that can be said for existing studies is that their findings are conflicting and inconclusive.

Honziak's (1967) research on infants of eighteen to thirty months studied the demographic variables of the father's occupation, parents' education, social class and family status and their relevance to the children's

intelligence. She found that for optimal mental growth, a boy appears to need first a warm, close relation with a mother, followed by a masculine model who not only achieves, but is concerned about his son's achievement. Baldwin's study (1949) found that democratic parents and their children generally have an I. Q. which is higher than other types of parents and their children. The greater creativity, imaginativeness, and constructiveness of children from democratic homes is related to the intelligence of these children. However, there is evidence that a democratic home stimulates the I. Q. so that the exact role of intelligence is difficult to appraise. Tanner (1969) asserts that there is currently a small but significant tendency for taller adults to score higher in some intelligence tests than short adults of the same sex, even within certain occupational categories such as unskilled laborers.

Physique as well as intelligence influences personality development. Not all children grow at the same rate and in the same way, thus producing variations in general body types such as 'tall and slender', 'short and stocky', etc. The child's physical status can influence his emotional and social adjustment. For example, if he has a chronic illness, he will tire easily, and this will affect his social relationships.

Some theorists believe that a child's general body type relates to his personality characteristics. Mussen

(1963) says that most of the research work on this problem has been inconclusive. It is likely that children with different body builds encounter different learning situations and are subjected to differential treatment by parents and peers. For example, the strong well muscled boy is more likely to be accepted by his peers, to become involved in group games, and to adopt the aggressive and extroverted behavior that are characteristic of school age boys.

Sheldon has reported an extremely close relationship between somatotype (endomorph, ectomorph, mesomorph), and three sets of tempermental characteristics which he has defined. Sheldon's findings are based on ratings made by him after intensive personal study of each of his subjects, thus creating the problem of validity in his study. Child's (1950) and Walker's (1962) studies established on an entirely objective basis that the relationship reported by Sheldon between somatype and various aspects of personality hold true with considerable consistency. Walker concludes that variations in physical energy, in bodily effectiveness for assertive or dominating behavior, and in bodily sensitivity appear as important mediating links between physique structure and general behavior.

Lindzey and Hall (1965) claim that too little consideration has been given to the study of morphology and behavior. They quote from Hall and Lindzey (1957):

One important by-product of American democracy, the Protestant ethic, and

the dogma of the self-made man has been the rejection of formulations implying that behavior may be innately conditioned, immutable, a 'given'. Because it is commonly accepted that physical characteristics are linked closely to genetic factors, the suggestion that physical and psychological characteristics are intimately related seems to imply a championing of genetic determinism. It is not surprising that such a conception has been unable to muster much support in the face of the buoyant environmentalism of American psychology (p. 337).

They go on to generalize by saying that the most firmly based evidence now possessed suggests the existence of important associations between morphology and behavior, and the magnitude of this relation needs to be determined precisely.

In a study such as this, the variable of physique has intriguing possibilities and is worthy of further research. There was no attempt to control physique other than to eliminate all children from this study who were chronically ill or physically disabled in any way.

The ordinal position of a child in his family constellation is thought to be of some significance to his personality development. Alfred Adler attached great importance to the effect of order of birth upon personality adjustment. He believed that each child faced a different situation because of his position in the sibling constellation. He believed that submission of the younger to the older could not be tolerated permanently, and that feelings of inferiority and uncertainty invariably gave rise to a

striving for a higher superior level in order to obtain compensation. "As a result, the younger is usually more active and aggressive. The youngest children in families bear unmistakable signs of the fact that they have been the youngest", says Adler. He believed that youngest children had the greatest incentive to strive to surpass others while oldest children especially boys were apt to be more conservative and less dominant than their younger siblings. The result might be overdominance, violent impulses, haste and impatience (Hall & Lindzey, 1957).

Maddy (1943) found that the oldest child in the lower socio-economic group was the most dominant, and an only child was the least dominant. This conflicts with Levin and Sears (1956) who claim that for both sexes, children who were 'youngest' in their family and who were 'only' children showed more aggression than 'oldest' children. Bonny (1944) reported the trend of a positive relationship between popularity of a child and a smaller family unit. It seems that the least popular child has more brothers and sisters near their own age with whom to associate in growing up. The 'only' child seemed to have greater social success. Koch (1956) studied two-child families intensively, and could only generalize the following points: (1) that two to four year spacing between children may be rather stressful, and (2) that having a sibling opposite in sex may be very stimulating and security taxing, especially to first borns.

In Callard's (1968) study on infants, she concluded

that infants exposed to few persons (i.e. first borns) tend to show more fear and fewer positive social responses toward strangers than do infants exposed to many (later borns). Mothers tend to be more anxious about and protective of their first born. First borns not only lack exposure to siblings, but also are not given as much opportunity to adapt to a variety of other persons.

In an interesting study done on fighter pilots and their ordinal position in the family, Schachter (1965) found that both ordinal position and family size affects the magnitude of anxiety. First born subjects were more anxious than later borns; those from small families more anxious than those from large families.

These studies are somewhat controversial and do not lead to any strong generalization about the effects of ordinal position on personality.

OTHER FACTORS INFLUENCING PERSONALITY DEVELOPMENT

Investigators have amassed a large body of knowledge that indicate that different socio-economic groups in the United States have different cultures - that is different ways of thinking and behaving. These differences include attitudes toward education, property, child-rearing practises, sex, etc. These differences are learned. Middle class children learn middle class culture patterns chiefly in the family by means of the social learning theory as proposed by Dollard and Miller. The child learns

ways of behaving and believing by: (1) rewards and punishments given by parents, and (2) unconscious imitation of those in prestigious positions.

In our society, methods of child-rearing among lower and middle class parents have been studied intensively for the past two decades, with conflicting results. A study done in Chicago in 1947 by David and Havigurst reported that middle class parents tended to be stricter than lower class parents in such matters as weaning, toilet training, scheduling and general freedom of movement in their children. The lower class child was pictured as having an easier, more permissive, less frustrating upbringing than his middle class peer. Maccoby and Gibbs (1954) in a Boston study presents an altogether different picture. They found in their studies that middle class parents were more permissive and warm, and less severe, with the more severe child training occurring among the lower groups. The upper middle group appear to be more tolerant of infantile behavior and to employ less severe punishment in the process of training. The Maccoby paper apparently mirrors the greater permissiveness of middle class parents, at least as it existed in the fifties.

Kahn (1959) in a recent survey of Washington, D. C. working class and middle class families concludes that there appears to be a close fit between the actual working class situation and the values of working class parents;

between the actual middle class situation and the values of middle class parents. In either class, those values that seem important but problematic (difficult to achieve) are the ones to be accorded high priority. For the working class, the important but problematic centres around qualities that assure respectability (cleanliness, honesty and obedience); for the middle class it centres around internalized standards of conduct (self-control and consideration for others). He concludes that, for whatever reasons, parents' values are related to their social position, particularly their class position.

Maddy (1943) did a comprehensive study to compare traits, attitudes and intelligence of two occupational groups. Children from professional families scored higher on I.Q., dominance, extroversion and emotional stability than children from semi-skilled families. Bonney (1944) claims that the most popular children tend to come from the better class homes.

McKee and Leader (1955) in a recent study of competition in nursery school children found that children from the lower middle class competed more than those from the upper middle class, and boys more than girls. It seems that lower middle class children are rewarded by their parents for competition, while upper middle class parents discouraged competition in play. The study also showed that highly competitive children were not necessarily highly aggressive.

Several investigators (Clarke, 1956; MacDonald, McGuire and Havighurst, 1949; White, 1955) tested the hypothesis that children from different social classes will have different leisure time activities. All studies confirmed that there are systematic differences in what people do for leisure at different socio-economic levels. Upper middle class spend leisure time at libraries, study groups, plays, etc., while lower classes use parks, playgrounds, zoos, baseball games, etc.

Allport (1965) states that everyone admits that culture is vastly important in shaping personality. In fact, some writers regard it as the all important factor. Societies differ with respect to who will be the chief agent of socialization; how weaning, toilet training, etc., are dealt with; and what children are rewarded for. These differences are reflected in the personality of the growing child. Some of the relationships between child training and personality are direct and easy to trace. When the attitudes and ideals that are important to a society are known, the encouragement of these attitudes by a system of rewards and punishments can be detected. American middle class parents are known to cherish initiative and independence in the economic sphere. They facilitate the development of these traits in the young. In Israel, there is a unique system of socialization where the child is reared from infancy outside the home. In the U.S.S.R. the goal of the state is to train the young in socialist

morality. To ensure correct socialist upbringing, both family and school must utilize such approved techniques as group criticism, self-criticism, and group oriented punishments (Stendler, 1964).

Children differ in ways that are clearly ascribable to differences in the cultural settings in which they grow and develop. A very important aspect of any culture is the differentiation it makes in its expectations of children at different age levels. General American culture - middle class particularly, stresses competition and personal achievement. Early in life, children are made aware of the value of accomplishment and as they grow older rewards for competition increase and competitive attitudes become stronger. As the child becomes increasingly socialized, as he identifies more strongly with his parents and others in society, he adopts the socially approved competitive values. Baldwin (1949) claims that nursery school children from democratic freedom giving homes tend to be more outgoing and more competitive than those from authoritarian homes.

Recent literature has characterized the role of the modern American father as 'vestigial'. He is said to have abdicated the rearing of his child to the mother. Tasch's study (1952) based on the reports of the fathers themselves indicates that the role of the father is an active one. They not only participate in such activities as the routine daily care of the child, but the majority of them seem to consider child-rearing as part of the requirements of the

father role. Tasch says that in ancient times in America the roles of the parents were rigidly prescribed by convention, custom and love. In our time and situation, these rules are no longer so firmly fixed nor clearly demarcated.

Sex typing refers to the adoption of the beliefs, attitudes, and activities which the culture defines as appropriate for one's sex. Most of the members of Western Civilization believe that boys and girls should behave differently. Sometimes these beliefs are implicit and unconscious; sometimes explicit and consciously encouraged. Mussen (1963) states that in general, overt physical aggression, dominance, competence at athletics, achievement, competitiveness and independence are regarded as desirable traits for boys. Most parents reward behavior that they view as appropriate to the sex of the child and punish responses that are considered inappropriate. These sex-typed attitudes are transferred from one generation to the next with few changes in content.

Brown (1958) says that within a single generation in America, changes have taken place in the traditional conceptions of what is masculine and what is feminine. Both masculine and feminine roles are becoming broader, less rigidly defined, less sex-typed and more overlapping with each other. This has an effect on the sex role identification and preferences of children. Thus the process by which a boy becomes like his father (i.e. a man) is influenced sharply by the various role structures in

today's families. There are definite signs that the convergence of the sex roles gradually is taking place in our society.

Several studies (Hetherington, 1965; Mussen & Distler, 1959) suggest that parental power or dominance influence sex-typing in boys. Mussen and Distler (1959) and Payne and Mussen (1956) indicate that identification and appropriate sex role typing are facilitated for both-sex children by warmth in the same sex parent.

Rothbart and Maccoby (1966) although their study showed that dependent behaviors are less rewarded for males, and physically aggressive behaviors are less rewarded for females in our culture, concluded that inconsistency between parents seemed to be the rule, and while a parent may treat his child in a manner consistent with the cultural stereotype in one area of behavior, in another he may not.

Cofer and Johnson (1960) admit that the cultural role of sports in our present day society is little understood. Recreation for its own sake has not been a value widely held in American culture; the emphasis has always been on work. There seems to be a profound cultural change with regard to the role of sports and physical recreation in present day American culture. There seems to be a shift of fundamental objectives and goals. From one era where character was largely formed for work and at work, a shift has been made to an era where character has increasingly been formed for leisure and during leisure.

This study attempts to control the important variable of culture by eliminating any children from the study whose parents were not born in Canada. In this way, it was assumed that all the children studied would have a similar Canadian cultural background.

The religious affiliation of the family could have an important effect on the personality development of the child. Quinn (1965) in his thesis on the cognitive correlates of religious devoutness outlined the background research in this area. Max Weber in his book, The Protestant Ethic, written in 1930 developed the theory of the Protestant ethic which states that the psychological compatibility of religious and worldly goals is more obvious to the Protestant than to the Catholic. Catholics are more likely to perceive a sharp cleavage between religious and worldly objectives and consequently, as a group do not aspire to, or reach the levels of achievement in business that Protestants attain. The essence of the Protestant revolt against the Catholic church was a shift from a reliance on an institution to a greater reliance on the self. McClelland (1961) has proposed that the key factor differentiating Protestants and Catholics is the childhood independence training. His assertion that Protestants are higher in achievement motivation has formed the basis for much research which has tended to support his ideas.

The Authoritarian Personality by Adorno et al., (1950) which began as a study of anti-Semitism, relates

child rearing practises and the authoritarian personality. It is generally assumed that the authoritarian personality is rigid or inflexible; that he is concrete in his thinking and does not handle abstractions easily; that he is conforming and does not willingly examine his own thoughts and adjustments. There also seems to be an exaggerated respect for authority; there is hostility toward groups other than the one to which the authoritarian individual belongs.

It is hard to state that religious beliefs and authoritarianism are related, but research seems to point to this. Catholics who belong to a church whose authority is heirarchially and ultimately infallibly constituted are said to be more prone to the development of authoritarian traits. It is thought that Catholics tend to be more dogmatic than Protestants.

Jones (1955) in a study on religious values and authoritarian tendency, found that there was a marked tendency for authoritarian cadets to report a religious background. Marten and Nichols (1962) found that religious beliefs correlated positively with authoritarianism. Religious persons were found to be more authoritarian, ethnocentric, and perceptually and intellectually rigid than the irreligious. Apparently, a religious person is a conventional, conforming person to whom being socially acceptable means a great deal.

If, as research seems to indicate, the child rearing practise of a Catholic home is different than that of a non-Catholic home, then the personality development, and

possibly participation in sports may be different for a Catholic boy than for a non-Catholic boy.

PERSONALITY CHARACTERISTICS OF SPORTS PARTICIPATORS

Very little attention has been directed to the psychology of sport in America until the 1960's. In 1962, a team of research psychologists, Tutko and Ogilivie, began to utilize various personality scales in studying the personality traits of various athletic teams. Since then, primary research of sports psychology has centred around the superior athlete (Vanek & Cratty, 1970).

Cofer and Johnson (1960) suggest that there have been three types of personality studies related to sports, in an attempt to determine: (1) whether there are measurable differences in personality among various types of athletes, (2) whether outstanding performers in sports have certain measurable and distinguishing personality traits, and (3) whether participation in sports gives rise to changes in personality dynamics. No studies seem to have been undertaken in an effort to determine whether certain types of personalities merely gravitate into sports. This question, of course, is the essence of this thesis.

Some controversy surrounds the question as to whether or not there is some kind of general personality trait pattern typical of athletes. Studies in the United States and Europe often present findings which purport to identify an athletic type, or the emergence of specific personality

trait factors within specific sports. However, the interpretation of these studies is hazardous. Such factors as sample size, culture, uniformity of testing materials tend to confuse the results. Vanek and Cratty (1970) comment:

The cultural status given the sport, as well as the attendant political climate, prevalent weather, and similar conditions, can exert a marked influence upon the nature of the individual's taking part in sports, as well as the number of people who may be drawn to specific sports (p. 82).

Vanek sites foreign studies done in Germany (Neumann, 1957), Austria (Seist, 1965), London (Kane, 1964) and Czechoslovakia (Brichein & Korian, Hosek). Generally, these findings suggest that the superior athlete is not usually content, but instead may display aggression and neurotic tendencies which he may be attempting to reconcile through sports.

Cofer and Johnson (1960) cite studies undertaken in the United States in an attempt to test the 'athletic type' impression. Such studies have been done by Henry, Husmann, Golf, Harlow and Booth. There have been similar investigations involving various types of athletes, in which several different tests were used; some differences in personality variables have been reported in all such studies.

Booth (1958) studied 141 athletes and 145 non-athletes of a single college using the M.M.P.I. to compare personality ratings. He found statistically significant

differences in personality to exist between athletes and non-athletes, and between participants in individual sports, in team sports and in team-individual sports. Differences found included anxiety (athletes scored higher than non-athletes); dominance (athletes scored higher than non-athletes); and depression (athletes who participated in individual sports scored significantly higher than athletes who participated only in team sports).

Seymour (1956) conducted a study comparing behavior characteristics of ten to twelve year old participant and non-participant boys in Little League Baseball. The data indicated that in grades four to seven, boys who participate in athletic programs are accorded a higher level of social acceptance. The author also concluded that the participant group possessed a 'higher degree of desirable traits' both prior and subsequent to participation in Little League programs.

Slusher (1964) compared high school athletes and non-athletes relative to personality profiles as indicated by the M.M.P.I. and intelligence as indicated by the Lorge Thorndike Intelligence Test. The M.M.P.I. did seem to distinguish between athletic and non-athletic groups - hypochondria was significantly higher for all athletes except swimmers. Intelligence was significantly lower for all athletic groups when compared to non-athletic groups.

In 1967, Ogilvie and Tutko administered the Cattell C.P.Q. to thirty-three boys (age 10.1) and thirty-seven

girls (age 9.8) who were members of a swim club. Another fifteen boys and girls (age fourteen) on the same team were administered the High School Personality Questionnaire, and compared to Olympic swimmers of age 19.4. The trends evidenced from ages ten through nineteen years were: the younger children were more introverted while the older ones seemed to be more extroverted and outgoing; self-assertiveness increased as a function of age; the young swimmers were found to be self-centered, lower in self-control and self-discipline. Variables other than the continued participation in competitive swimming could have caused the changes recorded. This study was reported by both Singer (1969) and Vanek and Cratty (1970).

Doctors Ogilvie and Tutko have done several other studies investigating personality trait qualities of athletes in the United States. In the most recent article (Ogilvie & Tutko, 1971), the authors describe a test which they have developed - The Athletic Motivation Inventory - which measures eleven traits common to most successful sports figures. This test, administered to approximately 15,000 athletes, indicates that general sports personalities do exist. The results indicate that athletes who survive the high drop-out rate associated with athletic competition characterize the following traits: (1) great need for achievement, (2) highly organized, orderly, respectful of authority, dominant, and (3) large capacity for trust, great psychological endurance, self-control, low resting

levels of anxiety and slightly greater ability to express aggression. The validity and reliability of this test is not known at this time. The research program at San Jose by Ogilvie and Tutko has resulted in the collection of a large amount of data which needs to be summarized and formulated into a theory.

Vanek and Cratty (1970) report that a recent investigation by Kroll and Crenshaw using 387 athletes in which they used the multiple discriminant function analysis technique found significant profile differences for each of the four athletic groups studied (football players, wrestlers, gymnasts, and karate participants).

From 1964 to 1968 an extensive study by Vanek and Hosek was conducted using 260 athletes in ten sports. The study is still in progress, but preliminary results seem to indicate few differences in personality trait structures when the total group of athletes is contrasted to the norms. On the Cattell test used, only three differences were found: athletes were a little more reserved, were more intelligent, and were more imaginative. The ice hockey players within this population were found to be higher in extroversion, lower in self-criticism, and evidenced lower neurotic tendencies.

Although there is growing research literature dealing with personality traits of variable types of athletes, studies have not been done which justify generalization as to specific identifying characteristics of groups.

Vanek and Cratty (1970) summarize the position this way:

The trait patterns isolated in these investigations indicate that within certain sports groups, and on the part of certain individuals, expected personality traits may often be identified. But the delineating of some ubiquitous 'animal' called an 'athlete' cannot be done with any degree of certainty. If one compares personality measures of a large group of athletes from many different sports, it is likely that the average scores will approximate those found within a normal population of young men and women of a similar age and living in a similar culture (p. 82).

In summary, this chapter has presented the current views on factors which influence personality development and therefore are thought to be related to sports participation. In addition, it has surveyed the research already done on the personality characteristics of sports participators.

CHAPTER III

METHODOLOGY

THE SAMPLING PROCEDURE

Stuart (1968) states that unless random sampling methods are used, there is no basis for the use of inferential processes. Because the purpose of this study was to make inferences to the population at large, it was vital to select a random sample. Stratified random sampling was considered as an alternative, using the socio-economic variable as the stratifying factor. Peatman (1947) and Stuart (1968) claim that the main principles of such a stratified sample require that: (1) there is a significant correlation between the control factor (socio-economic level) and the behavior to be studied (participation), and (2) that the necessary information about the universe is available so that the stratification can be based on facts. Neither of these criteria were able to be fulfilled so a simple random sample was chosen.

The original sample in this study consisted of 247 grade four boys from nine schools selected randomly from the city population of 174 elementary schools. Thus the sample was representative of the total population of all grade four boys from the City of Edmonton Public and Separate School Systems.

To guarantee randomness, each elementary school in the Edmonton Public and Separate School system was listed

alphabetically and numbered. These totalled 174 schools in all. The desired size of sample (nine schools) was randomly chosen by using a table of random numbers. Thus, the schools were taken as the units for sampling, although the pupils are considered the basic sampling unit, as explained by Peatman (1947). All the grade four boys in each school were used for the study. By this sampling method, no possibility of a bias could arise.

The choice of the boys' age in the sample merits some discussion and explanation. The sample included only nine year old boys in grade four whose birth dates fell in the 1962 calendar year. The choice of nine year old boys was made for the following reasons:

1. It was desirous to study the boys at that point in time when they were first given the opportunity to participate in sports. In the urban community studied, the community leagues offer hockey and baseball through the school to children of this age. In a study done by AAHPER (1968) it was found that the chronological age when agency sponsored athletic competition most often begins is in the age range of eight to ten years. Thus, this is the age period when sport is available to the boys through the school system.
2. Mussen (1963) claims that many activities, interests and attitudes are clearly sex-typed. Between the age of eight and eleven, boys are principally

interested in playing active, vigorous, competitive games, involving muscular skills and dexterity. They are tough and courageous; they have lots of energy that needs various outlets.

Parents' Questionnaires were sent to all the parents of the original sample of 247 children. Some children were eliminated from the original sample for the following reasons: (1) those whose parents did not return the approval form and/or the Parents' Questionnaires, (2) those children who had health problems of a debilitating nature, or were sick the day of testing, and (3) those children who were in grade four but who were not nine. These eliminations reduced the sample to 170 boys. Of this group, 137 boys had Canadian born parents and were the group whose scores were analyzed by means of the multiple discriminant method.

INSTRUMENTS

This study involved the measurement of twenty-two variables for each child. The main instruments used were:

1. Questionnaire for Children, Form A and Form B,
2. Parents' Questionnaire,
3. Children's Personality Questionnaire,
4. Blishen Occupational Class Scale,
5. School records to obtain data on intelligence, ordinal position and religion.

A questionnaire for the children was devised by the

examiner to measure the amount of their participation in sports. First, it was ascertained that each school in the sample had equal opportunities available to them for their children to become involved in team sports. A form was filled out by the principal of the school (See Appendix A). In the nine schools chosen, all the boys in grade four had an opportunity if they so wished, of being involved in team sports.

When the original presentation to the class was made by the examiner, a special effort was made in an attempt to prevent 'faking' and bias on the part of the children, and to increase the validity of the questionnaire. Prior to testing, a discussion on the interests of children led normally into a discussion on sports and the meaning of team sports. No evaluation of 'good' or 'bad' was attached to the concept of 'participation in sports'. In this discussion, the definition of sports as given by Sapura (1961) was used so that the children could differentiate between organized team sports, and recreational sand-lot play. The following definitions were used:

Organized team sport. A sport played with a team of members, which has been planned in advance, supervised, directed, and carried out with regard to rules. Examples of team sports would be hockey teams organized by Community Leagues, swim teams, ski teams, etc. All such organized team sports have a regular schedule of practise and games.

Sports participators. Those children who joined an

organized team (or teams) and became committed to play for the team during the season involved, and did play regularly.

Non-sports participators. Those children who did not join an organized team (or teams) during the period of time in question.

After this discussion on interests and sports, each child was given both a Form A 'Sports Interests', and a Form B 'Other Interests' (See Appendix B). These forms were explained. The children were then asked to fill in Form A if they had joined any team sports this year or last year; to fill in Form B if they had not. If they had difficulty with this task, they were encouraged to ask questions.

Form A was designed to find out how much the child participates in sports. The team sports that were thought to be available to the children (and checked through the principal) were listed to be checked by the child. In scoring, each sport was given a point score of five - there was no attempt to evaluate one sport as better than another. Form B was not marked or used in any way. To increase the validity of Form A, the children were asked to identify the team on which they played by writing in its name. As a final check on the information given by the child, the examiner talked with each child individually to attempt to verify his information. This was done as the child handed in his questionnaires, and was thought to be very successful.

The method just described, in presenting the

questionnaire to the children and in attempting to maximize its validity, was devised by the examiner during the pilot project attempted with ten boys prior to the final testing.

The IPAT Children's Personality Questionnaire was the measuring instrument used to evaluate the personality of the boys in the sample. The C.P.Q. is an objective test that yields a general assessment of personality development by measuring fourteen distinct dimensions or traits of personality which have been found by psychologists to approach the total personality. The C.P.Q. is a standardized test with two forms, A and B, each divided into two parts. It is designed to give the maximum information in the shortest time about the greatest number of dimensions of personality.

The reasons for using the C.P.Q. in this study were several: (1) the C.P.Q. has been used in previous sports research. In longitudinal and cross sectional studies, it can be linked with the ESPQ, HSPQ, and the 16 P.F. All of these tests have the same principal personality dimensions in them. (2) It deals with psychologically important traits of proven functional unity and relevance to general personality theory, having been established by factor analytic research. It operates on the assumption that all aspects of personality need to be considered. (3) It is conveniently applied either as an individual test or as a group test. The C.P.Q. is designed for children ages eight to twelve with the reading level properly adapted and with

appropriate age and sex norms. (4) Scoring is easily and rapidly done by using a stencil key. (5) There has been a considerable amount of research done on this test, and on its associated questionnaires.

The fourteen dimensions or source traits (Cattell, 1946) are identified and referred to by: (1) letters of the alphabet, keeping to the same designations as have been traditionally used in the other related tests, (2) technical names which give the most accurate meaning, and (3) popular titles for immediate meaningfulness and lay discussion.

The reliability coefficients across the fourteen factors for the full length test range from (1) full length test dependability coefficient .63 to .87, (2) full length test stability coefficient .52 to .79. The direct concept validity of the test ranges from .33 to .91 for Form A (Porter and Cattell, 1968).

In this study, Form A1 and A2 were used, and the raw scores obtained used in the statistical analysis. There was no need to convert the raw data to stens.

A Parents' Questionnaire was designed by the examiner to measure the parents' interest in sports. The theory outlined in Chapter II on the important role of identification, modelling and sex-typing of the parents by the child in developing the child's personality, gives very strong evidence that many of the interests that the child acquires are directly or indirectly attributable to the interests,

activities and attitudes of his parents. If the father was active in sports as a child, he will probably reward his son for being involved in sports. Thus, the author reasoned that a very important factor influencing a child's participation in sports is the father's past activity in sports in his school years, and his present interest in them. The questionnaire was designed to give information in the following five areas: (1) the father's past participation in sports during his school years, (2) the father's present activity and interest in sports, (3) the father's general interest in sports - watching games on T.V. etc., (4) the father's desire for his child to be active in sports, and (5) the father's activity with the child in sports (See Appendix C and D).

Two questionnaires were mailed to the child's parents, with a covering letter explaining the study. It was hoped that each parent would fill in a separate questionnaire, because it was felt that there might be some difference between the relationship of the mother's and father's interest in sports and their son's participation in sports.

To determine the socio-economic status of the child's family, the Blishen Occupational Class Scale was used. Sociologists rarely agree about the precise meaning of the term "social status". Earlier researchers in this field have demonstrated the usefulness of an occupational scale when measuring social stratification. Tuckman (1947) concluded that an individual's occupation determines to a

considerable extent his social and economic status.

Kahl (1957) has this to say on the subject:

...a man's occupation was the variable which correlated most highly with the prestige rank granted his family by the local community. There are several reasons why occupation and prestige are so highly related. In the first place, a man's occupation is the source of his income, which in turn provides the style of life that serves as one of the major clues used by his neighbors in making their evaluation. But occupation stands for more than merely a certain level of income. It indicates a man's education; it suggests the type of associates he comes in contact with on the job; it tells something of the contribution he makes to community welfare, it hints at the degree of authority over other people (p. 53).

Unlike personal prestige, occupation has meaning that is about the same throughout the country, and this meaning has remained relatively stable for a long period of time.

A study in 1947 done by the National Opinion Research Centre (NORC) under the stimulus of North and Hatt, was based on the opinions of 2920 persons who rated ninety occupations. The conclusion drawn from this was that in our culture, skill (ability plus education and training), authority, income and prestige are a single meaningful complex.

A socio-economic scale suitable for Canada was developed by Blishen (1958, 1961) using the 1951 Canadian census data. It classified 343 occupations according to a variety of characteristics including years of schooling and income. It was found that this scale correlated .94 with the United States NORC Index, and correlated .91 with the

earlier Tuckman Scale

The Blishen Scale was used in this study to measure the socio-economic level of each of the boys in the sample. The occupation of the father was determined from the school records and confirmed by the information returned on the Parents' Questionnaire.

It is logical to conjecture a relationship between religion and participation. Research findings have suggested that home environment and parental attitudes could be responsible for children's participation. Authoritarianism is a type of home environment, and is claimed to be associated with religion.

The sample for this study was drawn from both the Public and Separate School systems thus giving both Catholic and Protestant subjects. No differentiation was made among the various types of religions encompassed by the word 'Protestant'.

The conflicting research findings on ordinal position in a family leaves the possibility of some relationship existing between order of birth and personality factors open to further research. In this study, the ordinal position of each child was determined from the school records and confirmed by the information given on the Children's Questionnaire.

Previous research has indicated conflicting results on the question of the relationship of intelligence to

sports participation. This factor was measured for each child in this study by using the intelligence score quoted on the child's school record.

Each child in the Edmonton Public School system is routinely administered the Detroit Beginning First Grade Intelligence Test during the second week they attend school. In grade three, early in January, each child is routinely given the Lorge Thorndike, level A, Form 1 Intelligence Test. (In Catholic Schools the L. T. is given in grade four). There is a verbal and non-verbal battery, both of which are given. If there is some discrepancy between the Detroit and Lorge Thorndike, further testing is carried out.

The I.Q. as determined by the Lorge Thorndike was used as the intelligence measurement of the children.

Culture and ethnic origin. These terms were used interchangeably throughout the study to mean the customs which distinguishes one society from another, or more correctly one national group from another. Only children of Canadian born parents were included in this study.

EXPERIMENTAL PROCEDURES

In carrying out this research, the following was the order of procedure.

Three weeks prior to testing time, the examiner visited the school to contact the teachers involved. A selective list (based on age) of the grade four boys to be involved was drafted, with a duplicate list given to the

teachers. They were asked to remind the boys to return their parents' questionnaires before the testing date. In this way, some control over the return of the questionnaires was maintained resulting in a fairly high return rate of seventy-six per cent.

Two weeks prior to testing time, a letter explaining the study and asking for their permission, was sent to the parents, along with two Parents' Questionnaires. These forms were mailed to the parents of the original sample of 247 boys.

A day was spent at each school testing and gathering information. The actual testing time was one and a half hours per class. For those children whose parents returned the permission slips and questionnaires, the testing procedure was as follows:

1. C.P.Q. Part A1,
2. Discussion on interests and explanation of meanings,
3. Questionnaire for Children, Form A and Form B,
4. C.P.Q. Part A2,
5. Brief individual chat with each child.

The school records were used to get the required data on each child: an intelligence score, his religious affiliation, his ordinal position in the family, his general health condition, and the occupation of the father.

The testing instruments were hand scored by the author. The raw data for each child consisted of a score on

the Questionnaire Form A, three scores from the Parents' Questionnaire (mother's, father's and a composite score), intelligence score, ratings on religion and ordinal position, fourteen scores from the C.P.Q., and a score from the Blishen scale -- twenty-two scores in all.

An I.B.M. card was prepared for each child and the raw data entered. The data was then analyzed by means of the multiple discriminative process.

STATISTICAL ANALYSIS

Cattell (1952) claims that personality studies can best be measured by statistical holistic methods. In such a study, the experimenter lets many things vary at once and then aims, by statistical analysis to isolate the particular relationship in which he is interested. This thesis lends itself to such a statistical approach, rather than to an experimental one.

Multiple correlation, partial correlation, the discriminant function and factor analysis are all holistic methods. They deal with the grouping of variables in relation to some holistic single effect, and they also attempt to give some account of where all the variance in a particular phenomenon goes to or issues from. They seek for a more complete account of the inferences at work.

Multivariate analysis is concerned with analyzing multiple measurements that have been made on a number N of individuals. The specific multivariate procedure selected

depends on the questions asked of the data.

In multiple correlation, the correlation of each of several variables with a criterion is known, as well as their correlations with one another. Then an attempt is made to obtain a weighted composite of the variables that will give the best possible prediction of the criterion.

The discriminant function is also a holistic device in that it tells how to combine (i.e. by what weights to add) a set of variables to give a total which will show the maximum difference or discriminating power between two groups, i.e. what total picture best distinguishes a participator from a non-participator. This differs from factor analysis in that the experimenter has to choose his two groups first. The multiple discriminant analysis is used when the scientist is interested in examining the group membership of individuals on the basis of a set of attributes of those individuals, the attributes measured as continuous variables. The criterion is categorical rather than continuous.

In this study, the sample of boys were measured on twenty-one variables (fourteen of them already factor-analyzed in the C.P.Q.) that were hypothesized as being related to membership in two groups. Thus, the discriminant analysis was chosen as the best statistical method for this study because: (1) group classification was the primary object, (2) it is able to test the significance of the separation of the two groups, and (3) it provides an

efficient basis for examining the nature of any differences found.

Cooley and Lohnes (1962) explains in detail the principles behind the discriminant analysis method. It is a procedure for estimating the position of an individual on a line that best separates classes or groups. The estimated position is obtained as a linear function of the individual's m (variable) test scores. The approach is to locate a line in the m space (variable space) for which the separation of the groups is optimized when the individual points of the different sample groups are projected onto it. A test of the statistical significance of the separation of the g groups in the m space is standard. It is also possible to scale the weights for the variables in each discriminant function ($g-1$; 1 in this study) to show the relative contributions of the variables to the discriminant. Computing and plotting the vector of group means in the discriminant space after provides a helpful map of the location of the groups in the reduced space. The tests answer the question whether the two sample groups should be thought of as arising from a single population or from two or more different populations.

The geometric interpretation of discriminant analysis (Cooley & Lohnes, 1962) can best be seen for the case of two groups and two variates. The bivariate plot for groups A and B is shown in the following diagram. Each ellipse in the diagram is the locus of points of equal

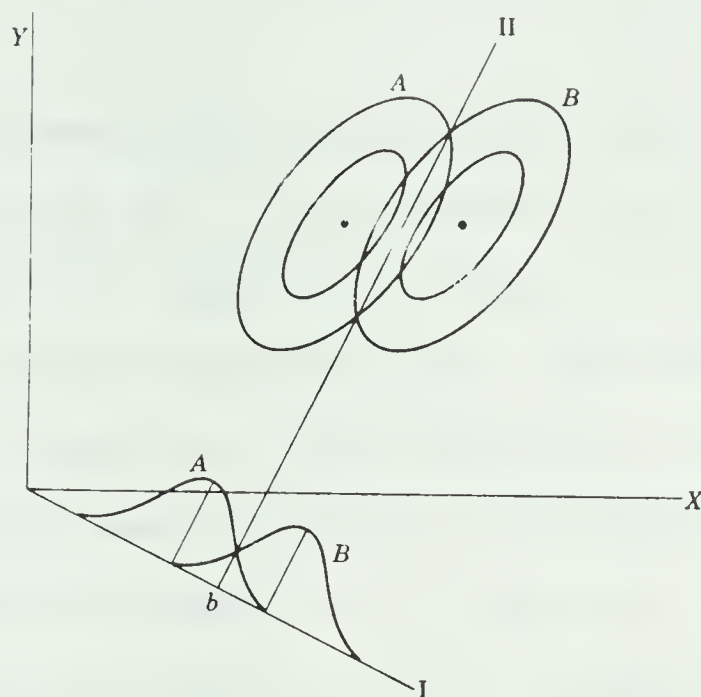


Figure 1. A graphic representation of the geometry of multiple discriminant analysis (Cooley and Lohnes, 1962, p. 117).

density for a particular group. These ellipses are called centours. The two points at which the centours intersect define a straight line II. If a second line I is constructed perpendicular to line II, and if the points in the two dimensional space are projected onto I, the overlap between the two groups will be smaller than for any other possible line. The discriminant function, therefore, transforms the individual test scores to a single discriminant score, and that score is the individual's location along line I. The point b where II intersects I would divide the one dimensional discriminant space into two

regions, one indicating probable membership in group A and the other region for group B. The principle is the same for the twenty-one variables in this study as just described for two variables.

In the present study, a multiple discriminant analysis was carried out. The analysis was concerned with finding a significant separation between the participatory group and the non-participatory group, and to maximize this separation by a weighting system assigned to the variables. The weighted vector was examined to determine those variables which contributed the most to the separation. The results of this analysis was compared to the findings from the analysis of variance done on each variable.

Table 1 gives a breakdown of the original sample of boys. Table 2 breaks down the sample of boys tested according to their culture.

This study was concerned only with boys with Canadian parents. For the purposes of analysis, seven subjects were randomly dropped from the non-participatory Canadian group so that the two groups would be equal in number. This precaution was unnecessary for the discriminant analysis, but because so few cases were involved, it was felt wise to do this in case other statistical procedures might be used on the data. Table 3 gives a breakdown of the criterion groups for the discriminant analysis.

TABLE 1

ORIGINAL SAMPLE

Number of boys in original sample (letters sent to parents)		247
Reduction in original sample because:		
Permission not received (24%)	59	
Incorrect age	9	
Health reasons	9	
Total sample of boys tested		<u>170</u>

TABLE 2

SAMPLE ACCORDING TO CULTURE

Boys with non-Canadian parents		33
Non-participatory boys	18	
Participatory boys	15	
Boys with Canadian parents		137
Non-participatory boys	72	
Participatory boys	65	
		<u>170</u>

TABLE 3

CRITERION GROUPS FOR THE MULTIPLE
DISCRIMINANT ANALYSIS

	GROUPS	NUMBER
N1	Non-participatory boys	65
N2	Participatory boys	65
	Total	<u>130</u>

RESEARCH HYPOTHESES

Based on the discussion presented in the introduction, the following operational hypotheses were formulated for the study.

1. There is a significant difference in the personality factors of those boys who do participate and those boys who do not participate in organized team sports.
2. There is a significant difference in the parental interest in sports of those boys who do participate and those who do not participate in organized team sports.
3. There is a significant difference in the socio-economic status of those boys who do participate

and those boys who do not participate in organized team sports.

4. There is a significant difference in the religious affiliation of those boys who do participate and those boys who do not participate in organized team sports.
5. There is no significant difference in the intelligence of those boys who do participate and those boys who do not participate in organized team sports.
6. There is no significant difference in the ordinal position in the family of those boys who do participate and those boys who do not participate in organized team sports.

The present chapter discussed the methodology of this study. A description of the sample, the instruments, the experimental procedures and the statistical analysis were presented.

The following chapter (Chapter IV) reports the results of the study and the relationship of the findings to the hypotheses.

CHAPTER IV

FINDINGS OF THE STUDY

The findings of this study are presented in the following manner. Each variable is examined separately to determine its relationship to participation in sports. This is done through analysis of variances. Data pertaining to the separation of the sample into two groups - participators and non-participators, and an interpretation of the discriminant function analysis is then given. The weighting system as it applies to the variables, and its use in choosing the most significant variables when the total picture is being considered, is discussed. In conclusion, the relationship of this data to the hypotheses is examined. Throughout the testing of these hypotheses, a significance level of .05 was chosen.

In Table 4, a list of the variables used in this study are reported. The titles and symbols for designating the fourteen personality dimensions measured by the CPQ are also included.

An analysis of variance for the two groups was performed on each variable. Table 5 shows the means and standard deviations for the two groups along the twenty-one variables. Table 6 shows the analysis of variance for the variables. It will be noted that the F tests for seven out of twenty-one variables show a probability of less than .05. This means that the observed differences between the two

TABLE 4

IDENTIFICATION OF VARIABLES USED IN THE ANALYSES

Variable Number	Description	
1	Mother's interest in sports	
2	Father's interest in sports	
3	Composite (Mother's and Father's) Interest in sport	
4	Intelligence score of child	
5	Ordinal position of child	
6	Religion (Catholic or non- Catholic)	
	<u>Cattell's factor Designations</u>	<u>Children's Personality Question- naire</u> (Popular Title in Parenthesis)
7	A	Schizothymia- <u>versus</u> -Cyclothymia (Stiff, Aloof- <u>versus</u> -Warm, Sociable)
8	B	Mental Defect- <u>versus</u> -General Intelligence (Dull- <u>versus</u> -Bright)
9	C	Dissatisfied Emotional Instabi- lity- <u>versus</u> -Ego Strength (Emotional, Immature, Unstable- <u>versus</u> -Mature, Calm)
10	D	Phlegmatic Temperament- <u>versus</u> - Excitability (Stodgy- <u>versus</u> -Unrestrained)
11	E	Submissiveness- <u>versus</u> -Dominance (Mild- <u>versus</u> -Aggressive)
12	F	Desurgency- <u>versus</u> -Surgency (Sober, Serious- <u>versus</u> -Enthusi- astic, Happy-go-Lucky)

TABLE 4 (Continued)

<u>Variable Number</u>	<u>Cattell's Factor Designations</u>	<u>Children's Personality Question- naire</u> (Popular Title in Parenthesis)
13	G	Lack of Rigid Internal Standards <u>-versus-Super Ego Strength</u> (Casual, Undependable- <u>versus-</u> Conscientious Persistent)
14	H	Threctia- <u>versus</u> -Parmia (Shy, Sensitive- <u>versus-</u> Adventurous, Thick-Skinned)
15	I	Harria- <u>versus</u> -Premsia (Tough, Realistic- <u>versus-</u> Esthetically Sensitive)
16	J	Zeppia- <u>versus</u> -Coasthenia (Liking Group Action- <u>versus-</u> Fastidiously Individualistic)
17	N	Naturalness- <u>versus</u> -Shrewdness (Simple, Awkward- <u>versus-</u> Sophi- sticated, Polished)
18	O	Confident Adequacy- <u>versus</u> -Guilt Proneness (Confident- <u>versus</u> -Insecure)
19	Q ₃	Poor Self Sentiment Formation <u>-versus</u> -High Strength of Self Sentiment (Uncontrolled, lax- <u>versus-</u> Controlled, Showing Will power)
20	Q ₄	Low Ergic Tension- <u>versus</u> -High Ergic Tension (Relaxed Composure- <u>versus-</u> Tense, Excitable)
21		Socio-economic Standing

NOTE: Adapted from R. B. Porter and R. B. Cattell, Handbook for the IPAT Children's Personality Questionnaire "The CPQ" (Champaign, Illinois: Institute for Personality and Ability Testing, 1959, pp. 6 - 7).

groups being examined (non-participants and participants) are statistically significant at the .05 level, for these seven dimensions.

The seven variables which were found to be significantly different in the two groups are:

Variable 1	Mother's interest in sports
Variable 2	Father's interest in sports
Variable 3	Both parents' interest in sports
Variable 4	Intelligence of the child
Variable 16	Factor J Zeppia - Coasthenia
Variable 18	Factor O Unperturbed adequacy - Guilt proneness
Variable 21	Socio-economic status

By examining the means of the two groups (Table 5) for the variables concerned, it appears that participating boys tend to have parents who are more interested in sports than non-participating boys. It should be noted that although the level of significance chosen to test the hypotheses was arbitrarily set at .05, these three factors (Variables 1, 2, and 3) are considerably more significant beyond the .01 level. Another factor which is significant beyond the .01 level is the socio-economic status variable. It would appear that participating boys tend to come from families who are in a higher socio-economic classification than non-participating boys. It would also appear that participating boys tend to be higher in intelligence than non-participating boys.

Two other variables, 16 and 18, which show a significance at the .05 level, are Factors J and O of the Children's

TABLE 5

MEANS AND STANDARD DEVIATIONS FOR TWENTY-ONE
VARIABLES, TWO GROUPS

Variables	Group 1 Non-Participators N=65		Group 2 Participators N=65	
	Means	Standard Deviation	Means	Standard Deviation
1	20.876	20.824	35.784	28.560
2	41.769	50.823	71.984	59.990
3	62.646	56.228	107.799	68.788
4	100.200	11.419	105.415	12.030
5	2.076	0.770	2.030	.763
6	1.200	0.400	1.138	.345
7	5.615	2.195	6.323	1.857
8	6.138	1.896	6.738	1.931
9	5.815	1.960	6.076	1.791
10	5.030	1.960	4.923	2.150
11	5.476	2.149	5.707	2.271
12	5.230	1.919	5.538	1.914
13	5.753	1.814	5.846	2.069
14	5.276	1.775	5.707	1.878
15	3.646	2.056	3.092	1.751
16	4.461	1.832	3.815	1.761
17	4.369	1.934	4.553	1.754
18	4.600	1.998	3.784	1.917
19	5.246	2.119	5.384	2.209
20	4.984	2.414	4.400	2.096
21	491.799	62.599	544.507	96.072

Personality Questionnaire (Table 4). In Table 5 the means on the J variable indicate that participating boys tend to be more vigorous, to like more attention, and to be more apt to sink their personality into group enterprises, than the non-participating boys, although both groups of boys tend toward the vigorous pole of Factor J.

In considering Factor O, Confident Adequacy - Guilt Proneness, the means (Table 5) indicate that sports participants tend to be more self-confident, cheerful, tough, resilient, and given to simple action. The non-participating group tend to be more depressed, sensitive, tender, apprehensive, and do not feel free to participate. Both groups tend toward the confident end of the scale.

In summary, there is reliable evidence of a difference between participating and non-participating boys along the dimensions of parents' interest in sports, socio-economic level of the family, intelligence of the boy, and his personality factors of vigorousness and confidence. It would appear that boys who participate in sports have parents who are more interested in sports, come from a higher socio-economic level, are more intelligent, and are generally more vigorous and confident than boys who do not participate in sports.

By plotting the means of the two groups for the sixteen personality factors (Table 5), a Personality Profile was drawn (Figure 2). The two factors which are significantly different for the two groups (Factors J and O) have

TABLE 6

UNIVARIATE ANALYSIS OF VARIANCES

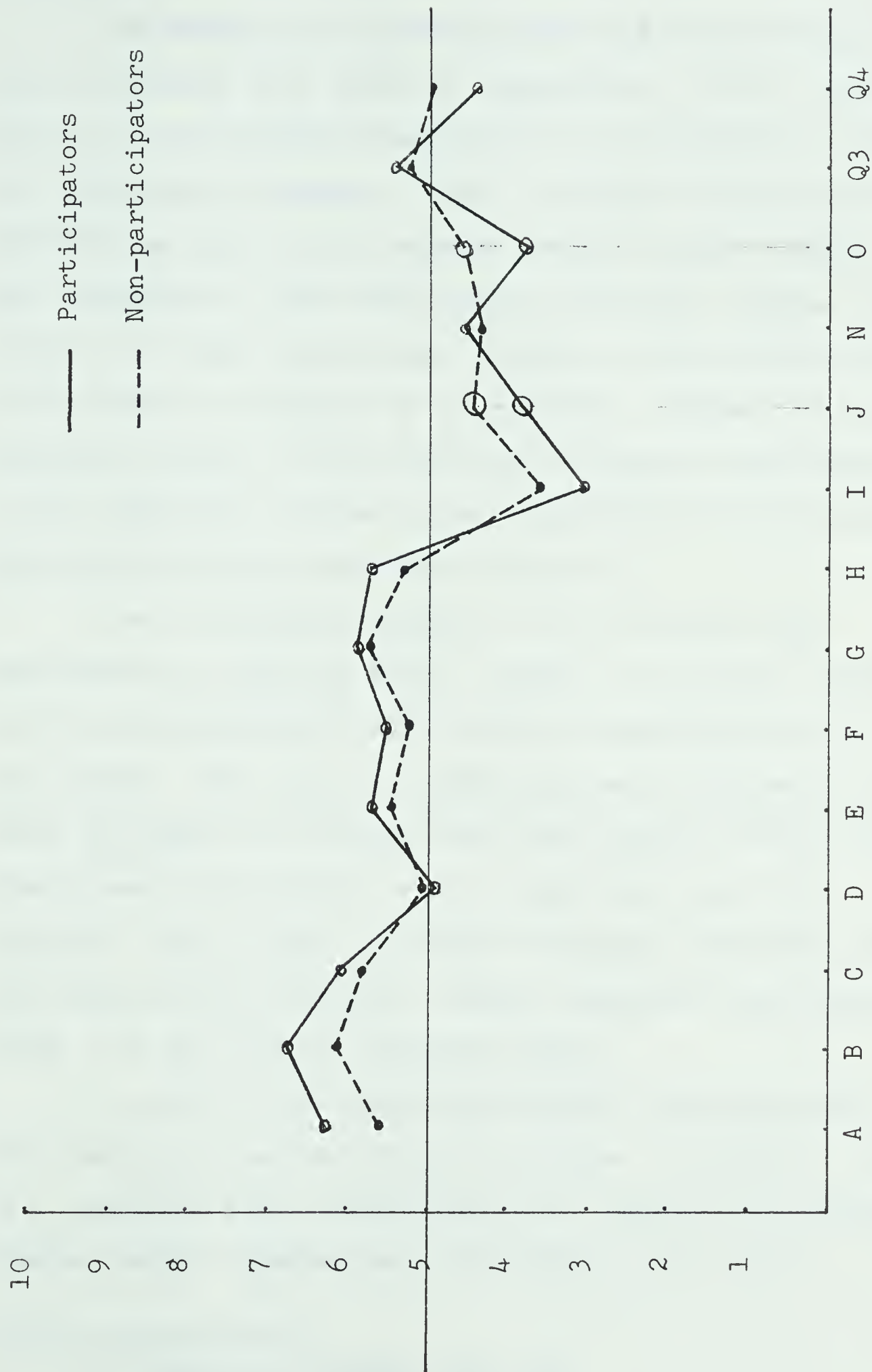
Variable	Source of Variance	SS	MS	DF	F	P
1	Treat Within	7222.812 81212.063	7222.812 634.469	1. 128.	11.384	0.000980
2	Treat Within	29671.312 401861.000	29671.312 3139.539	1. 128.	9.451	0.002579
3	Treat Within	66264.063 513074.940	883.875 139.727	1. 128.	16.531	0.000083
4	Treat Within	883.875 17885.125	883.875 139.727	1. 128.	6.326	0.013133
5	Treat Within	6.933 76.554	6.933 .598	1. 128.	0.116	0.733876
6	Treat Within	.123 18.153	.123 .141	1. 128.	0.868	0.353209
7	Treat Within	16.275 537.603	16.275 4.200	1. 128.	3.875	0.051165

TABLE 6 (Continued)

Variable	Source of Variance	SS	MS	DF	F	P
8	Treat Within	11.700 476.311	11.700 3.721	1. 128.	3.144	0.078543
9	Treat Within	2.221 458.403	2.221 3.581	1. 128.	0.620	0.432369
10	Treat Within	0.375 550.556	0.375 4.301	1. 128.	0.087	0.768068
11	Treat Within	1.729 635.664	1.729 4.966	1. 128.	0.348	0.555981
12	Treat Within	3.075 477.695	3.075 3.731	1. 128.	0.824	0.365623
13	Treat Within	0.277 429.526	0.277 3.847	1. 128.	0.072	0.788446
14	Treat Within	6.029 434.464	6.029 3.394	1. 128.	1.776	0.184945
15	Treat Within	9.969 474.308	9.969 3.705	1. 128.	2.690	0.103379
16	Treat Within	13.568 419.940	13.568 3.280	1. 128.	4.136	0.044038

TABLE 6 (Continued)

Variable	Source of Variance	SS	MS	DF	F	P
17	Treat Within	1.106 443.202	1.106 3.462	1. 128.	0.319	0.572848 ns
18	Treat Within	21.607 498.586	21.607 3.895	1. 128.	5.547	0.020023 <.05
19	Treat Within	0.621 609.449	0.621 4.761	1. 128.	0.131	0.718281 ns
20	Treat Within	11.106 664.587	11.106 5.192	1. 128.	2.139	0.145984 ns
21	Treat Within	90288.000 854592.000	90288.000 6676.500	1. 128.	13.523	0.000345 <.001



CPQ Personality Factors
PERSONALITY PROFILE

FIGURE 2

been circled.

The analysis of variance which has been discussed was used to examine each variable independently of the others. However, it is possible that there is a relationship among the individual variables. Thus, a multiple discriminant analysis was done which computed optimum linear weights for the variables to cause the maximum separation between the two groups. In other words, when looking at the combined effect of the twenty variables, it is possible, by means of the weighting system, to find out which variable contributes most to the separation of the non-participators and participators, which is second most important and so on.

The discriminating power of the variables was determined by computing Wilks' λ^2 . The Wilks' λ for the two groups is 0.6786 which is significant at the .001 level. The chance of producing group differences this large or larger by choosing two random samples from a twenty dimensional multivariate swarm is less than one in a thousand. Thus, among the twenty variables measured, there is a significant difference between the sports participators group and the non-participators group.

It will be noted that only twenty variables were used when computing the discriminant analysis. Variable 3, which is a composite score consisting of the father's and mother's interest added together was not included, as it was

considered to be a duplicate of variables 1 and 2. For clarity, however, the original numbering system has been retained.

Because there are only two groups involved in this study, the discriminant analysis yielded one discriminant function. This reduced the individual's twenty scores to a single score on the discriminant function. Table 7 shows the discriminant score for each boy. Figure 3 (page 84) illustrates the discriminant vector which shows the separation of the two groups. Table 8 shows the discriminant score means and variances for the two groups, and the grand discriminant score mean and variance.

TABLE 8

DISCRIMINANT SCORE MEANS AND VARIANCES

Groups		Means	Variances
Group 1	Non-participants	3.467	1.220
Group 2	Participants	5.302	2.335
Grand Discriminant Score		4.384	2.619

To validate the separation of the two groups by the Wilks' lambda, the multiple comparison method - Hotelling's T^2 was computed. The F ratio was significant at the .001 level, thus confirming that there is a significant difference between

TABLE 7

DISCRIMINANT SCORE FOR EACH SUBJECT

GROUP 1			
I.D.Number	Discriminant Score	I.D.Number	Discriminant Score
1	0.604	29	1.888
2	4.364	30	2.638
3	3.375	31	3.280
4	3.953	32	3.509
5	3.221	33	4.454
6	2.576	34	2.334
7	1.023	35	5.077
8	2.202	36	3.901
9	3.279	37	3.343
10	3.683	38	5.021
11	4.050	39	3.764
12	4.007	40	3.795
13	4.518	41	4.301
14	2.474	42	4.030
15	3.463	43	2.679
16	4.354	44	3.676
17	4.244	45	3.132
18	5.702	46	3.708
19	4.235	47	2.919
20	3.662	48	1.716
21	3.157	49	2.298
22	4.176	50	3.023
23	3.325	51	3.985
24	3.505	52	3.542
25	5.053	53	0.908
26	3.715	54	4.607
27	4.080	55	3.148
28	6.420	56	4.087

TABLE 7 (Continued)

Group 1

I.D. Number	Discriminant Score	I.D. Number	Discriminant Score
57	3.290	61	5.423
58	4.101	62	3.576
59	1.185	63	2.093
60	2.288	64	2.776
		65	3.445

GROUP 2

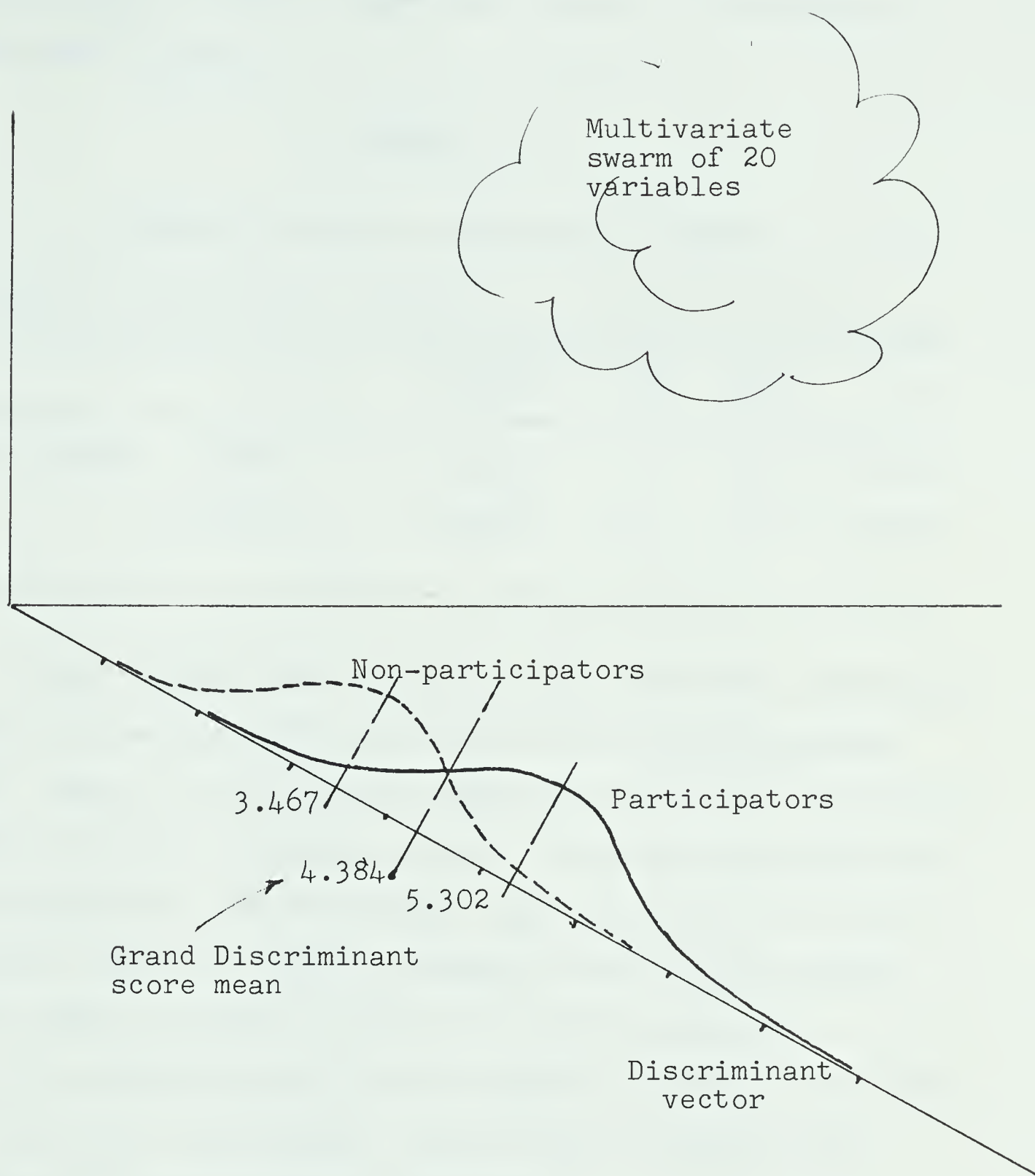
I.D. Number	Discriminant Score	I.D. Number	Discriminant Score
1	3.226	21	7.460
2	4.925	22	5.762
3	2.962	23	7.277
4	5.550	24	3.217
5	5.160	25	4.152
6	3.915	26	6.051
7	7.436	27	5.798
8	3.444	28	4.617
9	2.791	29	6.333
10	6.734	30	4.113
11	8.493	31	5.461
12	9.905	32	4.555
13	5.762	33	3.191
14	6.914	34	5.454
15	5.345	35	2.569
16	4.806	36	6.194
17	5.538	37	3.410
18	6.386	38	6.388
19	5.067	39	7.304
20	5.961	40	4.655

TABLE 7 (Continued)

Group 2

I.D. Number	Discriminant Score	I.D. Number	Discriminant Score
-------------	-----------------------	-------------	-----------------------

41	5.560	53	4.413
42	4.785	54	4.587
43	5.492	55	7.294
44	5.998	56	4.946
45	8.963	57	4.157
46	4.822	58	3.889
47	7.064	59	5.080
48	7.190	60	3.901
49	3.761	61	4.584
50	3.762	62	4.292
51	3.616	63	7.000
52	3.779	64	5.479
		65	5.927



DISCRIMINANT VECTOR SHOWING
SEPARATION OF THE TWO
GROUPS

FIGURE 3

the two groups. Table 9 shows the results of the Wilks' Λ lambda and T^2 tests.

TABLE 9
RESULTS OF WILK'S LAMBDA AND T^2 TESTS

		F-RATIO	DF1	DF2	p.
Wilk's lambda	0.6786	2.5805	20	109	0.001
T^2	60.6078	2.5805	20	109	0.001

These methods have indicated that there is a difference between the participating group and the non-participating group. However, they have not shown where the difference lies. To find out which variables are most important in causing the group separation, the two groups' mean scores on the twenty variables (Table 5), and the normalized and scaled weights for the twenty variables (Table 10) must be examined.

The normalized and scaled weights in Table 10 indicate both the direct and indirect contribution of each of the variables to the discriminant function.

The normalized weights are the weights which are applied to the variables to reduce them to a discriminant score. The scaled weights are for the interpretation purposes and indicate the variables which are the largest contributors to group separation along the discriminant function. The

TABLE 10
NORMALIZED AND SCALED WEIGHTS FOR
TWENTY VARIABLES

Variable	Normalized Weights	Scaled Weights
1	0.02694	7.67842
2	0.00684	4.33698
3*	-----	-----
4	0.02469	3.30222
5	-0.35890	-3.14021
6	-0.68545	-2.92053
7	0.09673	2.24291
8	-0.02801	-0.61129
9	-0.20541	-4.39785
10	0.09947	2.33403
11	0.11335	2.85795
12	-0.05868	-1.28246
13	-0.07938	-1.76176
14	-0.02481	-0.51712
15	-0.08809	-1.91853
16	-0.17149	-3.51424
17	0.33587	7.07088
18	-0.22399	-5.00141
19	0.07023	1.73387
20	-0.33072	-8.52578
21	-0.00862	7.96696

*Variable 3 was not included in this Analysis.
The original numbering system of the variables was retained.

larger the weight, the more important that factor is in causing the separation of the two groups.

In Table 10, the largest contributor in differentiating sports participators from non-participators is the personality factor Q₄, Low Ergic Tension - High Ergic Tension. The group means (Table 5) indicate a higher mean on Factor Q₄ for the non-participators. This indicates that boys who participate in sports are considerably more relaxed, more composed, and exhibit a lower drive tension, than non-participators. However, both groups are close to the norm on this dimension.

The variable next largest in contributing to the group separation is the socio-economic standing of the family. In Table 5 it is seen that participators have a higher mean on this variable than non-participators. Thus participators in team sports tend to come from a higher socio-economic level than do non-participators.

The scaled weights show that the mother's and the father's interest in sports are heavy factors in differentiating boys who participate in sports from those who do not. For each of these variables, the participating group has a higher mean than the non-participating group (Table 5). It would appear that boys who participate in sports have parents who are considerably more interested in sports than those parents of boys who do not participate. It is revealing to note that the mother's interest in sport carries a greater weight in differentiating the groups than the

father's interest.

Other personality factors which contribute heavily in differentiating the groups are Factors N, Naturalness - Shrewdness; Factor O, Confident Adequacy - Guilt Proneness; and Factor C, Emotional Instability - Ego Strength (Variables 17, 18 and 9 respectively). These three personality factors all have a heavier weighting than the father's interest in sports.

When comparing the means of the two groups on Factor N, (Table 5), it would appear that boys who participate in team sports tend to be a little more shrewd, realistic, and socially skillful than non-participants, but both groups tend to be on the low side of this bi-polar continuum.

On Factor C, Emotional Instability - Ego Strength, although both groups are well above the norm, data shows that boys who participate in sports tend to have more ego strength and are more emotionally mature, stable and calm than non-participants.

Factor O which is identified through the weighting system as an important factor in separating the groups, has already been found to be statistically significant at the .05 level.

The present study demonstrates one of the advantages of the multivariate analysis. In the analysis of variances (Table 6), Factors C, N, and Q4 (Variables 9, 17, and 20 respectively) were all insignificant. Nevertheless, the contribution to group separation of these dimensions discovered through the use of the multivariate technique,

was relatively high, in terms of their scaled weights. Not only are variables 1, 2, 3, 4, 16, 18, and 21 independently significantly different for the two groups, but also, when the total intercorrelations among the variables are considered, Variables 9, 17, and 20 are also important factors in causing a significant separation into two groups.

A stepwise multiple regression was computed in which the weighted variables could be combined in the best order to enable one to predict group membership to an extent that it could not be significantly improved by consideration of any other combination of these variables. This procedure enters variables into the regression one at a time, using an analysis of variance in selecting the order of variables, so that the variable chosen in a single iteration is the one that produces the greatest reduction in the residual variance of the dependent variable. At each step, variables are evaluated and may be removed from the equation if they are no longer significant.

Table 11 reports the summary data from the stepwise regression analysis. Table 12 is the regression weights table.

Table 11 indicates that five variables entered the regression at a significance level of .05, and in total accounted for 24.6% of the variance of the criterion. These predictors were socio-economic level, the mother's interest in sports, Factor O, Father's interest in sports, and Factor N. Factor J, which was significant

TABLE 11

SUMMARY DATA FROM STEPWISE
REGRESSION ANALYSIS

Step Num- ber	Variable Entering	Probabi- lity Level of Variable Entering	Per cent Variance Accoun- ted for	Increase in per cent Variance Accounted for	Sign. at .05 level
1	*21 (Socio- economic)	0.0003	9.555	9.555	.05
2	* 1 (mother's interest)	0.0061	14.761	5.206	.05
3	*18 (Factor O)	0.0112	19.013	4.252	.05
4	* 2 (Father's interest)	0.0257	22.184	3.171	.05
5	20 (Factor Q4)	0.0732	24.180	1.996	ns
6	*17 (Factor N)	0.0439	26.650	2.470	.05
7	4 (Intel- ligence)	0.1222	28.073	1.423	ns
8	7 (Factor A)	0.2897	28.739	.666	ns
9	6 (Religion)	0.3271	29.309	.570	ns
10	9 (Factor C)	0.3836	29.761	.452	ns
11	11 (Factor E)	0.2508	30.545	.784	ns
12	5 (Ordinal Position)	0.3768	31.009	.464	ns
13	16 (Factor J)	0.4750	31.313	.304	ns

TABLE 11 (Continued)

Step Num- ber	Variable Entering	Probabi- lity Level of Variable Entering	Per cent Variance Accoun- ted for	Increase in Per cent Variance Accounted for	Sign. at .05 level
14	10 (Factor D)	0.5079	31.575	.262	ns
15	15 (Factor I)	0.5864	31.753	.178	ns
16	13 (Factor G)	0.6648	31.867	.114	ns
17	19 (Factor Q3)	0.6417	31.999	.132	ns
18	12 (Factor F)	0.6944	32.094	.095	ns
19	8 (Factor B)	0.8384	32.119	.025	ns
20	14 (Factor H)	0.8798	32.134	.015	ns

*These factors contribute significantly at the .05 level to the prediction.

NOTE: Variable 3 (composite interest) was not included in this analysis. The original numbering system of the variables was retained.

NOTE: Only 32.13% of the variance of the criterion (participation in team sports) is predictable by these 20 variables.

TABLE 12

REGRESSION WEIGHTS TABLE

Regression Weights			
Variables	Standard Weight	Weight	Standard Error
1	0.246158	0.004719	0.001648
2	0.138070	0.001198	0.000753
*3	-----	-----	-----
4	0.103914	0.288682	0.266986
5	-0.096510	-0.062854	0.058990
6	-0.090032	-0.120056	0.123180
7	0.069949	0.016944	0.028749
8	-0.019003	-0.004904	0.024215
9	-0.135420	-0.035971	0.030682
10	0.071738	0.017424	0.027089
11	0.087918	0.019852	0.028115
12	-0.039529	-0.010277	0.025471
13	-0.054130	-0.013901	0.028177
14	-0.015989	-0.004343	0.028654
15	-0.059548	-0.015426	0.025601
16	-0.109692	-0.030034	0.030223
17	0.217518	0.058829	0.030430
18	-0.156935	-0.039226	0.028928
19	0.053293	0.012300	0.027237
20	-0.264112	-0.057924	0.024663
21	0.257366	0.001509	0.000515
CONSTANT =		1.101	

*NOTE: Variable 3 (Composite interest) was not included in this analysis. For clarity, the original numbering system of the variables was retained.

at the .05 level in the univariate analysis of variance (Table 6), and Factor C which had a heavy weighting in the multiple discriminant analysis (Table 10), must be substantially correlated with one or more of these five predictors. This results in their predictive qualities being "hidden".

Table 13 compares the significant findings of the three analyses performed. This table is discussed fully in the conclusions, page 100.

In summary, the results of this investigation should be considered in relation to the hypotheses outlined in Chapter III.

Hypothesis 1 stated that there is a significant difference in the personality factors of those boys who do participate and those boys who do not participate in organized team sports. The results indicate that Factor J, Zeppia - Coasthenia, and Factor O, Unperturbed Adequacy - Guilt Proneness, are significant at the .05 level, and that Factor C, Ego Weakness - Ego Strength, Factor N, Naiveté - Shrewdness, Factor O, Unperturbed Adequacy - Guilt Proneness, and Factor Q4, Low Ergic Tension - High Ergic Tension, are major contributors to a significant separation of the two groups at the .001 level of significance. Therefore, Hypothesis 1 is accepted at tenable.

Hypothesis 2 stated that there is a significant difference in the parental interest in sports of those boys

TABLE 13

COMPARISON OF SIGNIFICANT FINDINGS
FROM THE THREE ANALYSES

Description of variable	Univariate Analysis of Variances		Multiple Discriminant Analysis		Stepwise Regression	
	p < .05		p < .001		p < .05	
	vari- able	p	vari- able	scaled weight	vari- able	per cent variance
Socio- economic	21	< .001	21	7.96	21	9.55
Mother's interest	1	< .001	1	7.67	1	14.76
Factor O	18	< .05	18	-5.00	18	19.01
Father's interest	2	< .01	2	4.33	2	22.18
Factor Q4			20	-8.52	20**	24.18
Factor N			17	7.07	17	26.65
Factor C			9	-4.39		
Factor J	16	< .05				
Intelligence	4	< .05				
Composite interest	3*	< .0001				

*Composite Score was only included as a variable in the Univariate Analysis of Variance.

**Variable 20, was entered in the regression equation at step #5, although it has a significance level of .10.

who participate and the parental interest in sports of those boys who do not participate. The findings indicate that there is a significant difference in the parental interest in sports for the two groups. The level of significance of the mother's interest is well beyond the .001 level, as is the composite interest of both parents, whereas the level of significance of the father's interest is at the .01 level. Thus, Hypothesis 2 can be accepted as tenable.

Hypothesis 3 stated that there is a significant difference in the socio-economic level of boys who participate in sports and boys who do not. The study has indicated that the variable of socio-economic status is significant beyond the .001 level. Thus Hypothesis 3 can be accepted as tenable.

Hypothesis 4 stated that there is a significant difference in the religious affiliation of boys who participate in sports and boys who do not. The research indicates that the religious affiliation factor is not significant at the .05 level. Thus Hypothesis 4 is rejected at the .05 level.

Hypothesis 5 stated that there is no significant difference in the intelligence of boys who participate in sports and boys who do not. The study has revealed that the intelligence factor has a significance level of .05. Therefore, Hypothesis 5 is rejected at the .05 level.

Hypothesis 6 assumed the null position that there is no significant difference in the ordinal position of

those boys who participate in sports and those boys who do not. The study indicates that the ordinal factor is not significant at the .05 level. Therefore, Hypothesis 6 is accepted as tenable.

In summary, on the basis of the results of this investigation, there is reliable evidence to support the contention that young boys who participate in organized team sports differ in personality from boys who do not participate. It is also apparent that boys who participate in such sports are higher in intelligence, come from a higher socio-economic background, and have parents who are more interested in sports than non-participating boys.

OTHER FINDINGS

The correlation matrix for the total sample combining both groups is reported in Table 14. It is noted that the correlation between the father's interest and the composite interest scores is .92, whereas between the mother's interest score and the composite score, it is .52. The composite score is more nearly a reflection of the father's interest than the mother's. It is also of interest to note the low correlation between father's and mother's interest in sports (.15). This seems to be a rather surprising finding but may be related to the fact that there are less opportunities in sports for women.

There are no significant correlations of the intelligence variable with any of the other variables except

TABLE 14

CORRELATION TABLE

	1	2	3	4	5	6	7	8	9	10
1	1.00000	0.15189	0.52158	0.02141	0.05645	-0.04033	-0.00195	0.13261	-0.06983	-0.06977
2	0.15189	1.00000	0.92252	0.02205	0.12332	-0.07630	-0.04990	0.09476	-0.09369	0.05776
3	0.52158	0.92252	1.00000	0.02721	0.13650	-0.09172	-0.04383	0.12492	-0.10813	0.02271
4	0.02141	0.02205	0.02721	1.00000	-0.07892	-0.17546	0.13716	0.48044	0.13967	-0.01199
5	0.05645	0.12332	0.13650	-0.07892	1.00000	-0.05837	-0.27564	0.02033	-0.10977	0.18087
6	-0.04033	-0.07630	-0.09172	-0.17546	-0.05837	1.00000	-0.03302	-0.12331	0.04561	0.23427
7	-0.00195	-0.04990	-0.04383	0.13716	-0.27564	-0.03302	1.00000	0.04184	0.52620	-0.28257
8	0.13261	0.09476	0.12492	0.48044	0.02033	-0.12331	0.04184	1.00000	0.13513	-0.02060
9	-0.06983	-0.09369	-0.10813	0.13967	-0.10977	0.04561	0.52620	0.13513	1.00000	-0.27426
10	-0.06977	0.05776	0.02271	-0.01199	0.18087	0.23427	-0.28257	-0.02060	-0.27426	1.00000
11	-0.04069	0.10296	0.07280	-0.02029	0.16677	0.13869	-0.08353	0.06498	0.23650	0.40125
12	0.08350	0.02938	0.05770	0.01486	0.12144	0.04842	-0.01252	0.04971	0.17997	0.20237
13	0.06432	0.08070	0.09469	0.06543	-0.02367	-0.25920	0.15160	0.07831	0.02435	-0.45408
14	-0.05767	-0.00567	-0.02737	0.16531	-0.18205	-0.14300	0.47570	0.08830	0.34953	-0.36239
15	-0.08983	-0.00452	-0.03926	-0.04404	-0.01342	-0.15012	-0.09755	-0.00215	-0.26554	-0.15467
16	-0.07445	-0.03259	-0.05658	-0.09100	-0.02726	0.23541	-0.49049	-0.13239	-0.37827	0.44897
17	-0.04161	0.13161	0.09740	-0.03686	0.19386	0.30901	-0.31679	-0.03073	-0.08349	0.43331
18	0.06321	0.01222	0.03568	-0.26281	-0.51275	-0.09467	0.51275	-0.16069	-0.54679	0.19722
19	-0.08394	0.03333	0.04067	0.03333	-0.05183	-0.29299	0.34967	0.04403	0.20790	-0.50376
20	0.06083	0.04539	0.06287	-0.06000	0.13252	0.21389	-0.41230	-0.00080	-0.24226	0.51149
21	0.02016	0.21454	0.26771	0.16590	0.04689	0.04155	-0.06838	-0.20767	-0.02851	0.05577
	11	12	13	14	15	16	17	18	19	20
1	-0.04069	0.08350	0.06432	-0.05707	-0.08983	-0.07445	-0.04161	0.06321	-0.08394	0.06083
2	0.10296	0.02938	0.08070	-0.00567	-0.00492	-0.03259	0.13161	0.01222	0.00364	0.04539
3	0.07280	0.05770	0.09469	-0.02737	-0.03926	-0.05658	0.09740	0.03568	-0.02959	0.06287
4	-0.02029	0.01486	0.06543	0.16531	-0.04404	-0.09100	-0.03686	-0.26281	0.09159	-0.06000
5	0.16677	0.12144	-0.02367	-0.18205	-0.01342	-0.02726	0.19386	0.03333	-0.05183	0.13252
6	0.13869	0.04842	-0.25920	-0.14300	-0.15012	0.23541	0.30901	-0.09467	-0.29299	0.21389
7	-0.08353	-0.01252	0.15160	0.47570	-0.09755	-0.48049	-0.31679	-0.51275	0.34967	-0.41230
8	0.06498	0.04571	0.07831	0.08830	-0.00215	-0.13239	-0.04073	-0.16069	0.04403	-0.00080
9	0.23650	0.17957	0.02435	0.34953	-0.26554	-0.37827	-0.08349	-0.54679	0.20790	-0.24226
10	0.40125	0.20237	-0.45408	-0.36239	-0.15467	0.44897	0.43331	0.19722	-0.50376	0.51149
11	1.00000	0.49121	-0.47568	-0.03002	-0.48495	0.06342	0.43307	-0.10213	-0.50560	0.39876
12	0.48121	1.00000	-0.29173	-0.01220	-0.38850	-0.07868	0.30707	-0.18920	-0.32270	0.29491
13	-0.47568	-0.29173	1.00000	0.27001	0.26120	-0.30809	-0.50435	-0.20738	0.48732	-0.42284
14	-0.03002	-0.01220	0.27001	1.00000	-0.14859	-0.04882	-0.24986	-0.46650	0.29672	-0.35433
15	-0.48495	-0.38850	0.26120	-0.14859	1.00000	0.02478	-0.26765	-0.24859	0.31251	-0.14046
16	0.06342	-0.07868	-0.30809	-0.48482	0.02478	1.00000	0.32969	0.36123	-0.30077	0.41488
17	0.43307	0.30707	-0.50435	-0.24986	-0.26765	0.32969	1.00000	0.09248	-0.51077	0.54917
18	-0.10213	-0.18920	-0.20738	-0.46650	0.24859	0.36123	0.09248	1.00000	-0.16488	0.22213
19	-0.50560	-0.32270	0.48732	0.29672	-0.31251	-0.30077	-0.51077	-0.16488	1.00000	-0.53483
20	0.35876	0.28491	-0.42284	-0.35433	-0.18046	0.41488	0.54917	-0.22213	-0.53483	1.00000
21	-0.02367	0.10502	0.00417	-0.12268	-0.05742	0.03969	0.01395	-0.05019	-0.03495	0.15060

with variable 8 which is Factor B, low "g" - High Mental Capacity, on the CPQ. This correlation of .48 is lower than one would expect, considering both scores are measuring the same dimension. There are no correlations above .3 for any of the 21 variables with ordinal position or religion.

One would expect a higher correlation than .26 between socio-economic standing and parents' interest in sports, particularly since the study found a significant relationship between socio-economic level and participation in sports for boys.

Table 1, in addition to reporting the mortality rate of the original sample, gives some insight into the response of parents to research studies of this kind carried on in the schools. Of the 247 letters sent to the parents requesting permission to test their children, 188 returned affirmative permission slips. This is a return rate of seventy-six per cent.

One of the limitations of the study was to restrict the testing to those boys who had Canadian parents. Table 2 outlines the sample according to culture. Out of the 170 boys who were randomly selected from the total grade four population of boys, thirty-three came from families whose parents were not Canadian born. This is nineteen per cent. These children were not evenly distributed among the nine schools but were heavily concentrated in certain districts.

In one school visited, a total number of seventeen pupils was tested, out of which twelve had non-Canadian born parents. In this school, it was found that the testing took much longer, and the children had some difficulty answering the CPQ Questionnaire. When it became evident that there would be such a large non-Canadian sample, consideration was given to analyzing this sample in a similar manner to that which was done on the Canadian group, and then comparing the results. However, thirty-three subjects separated into two groups gave too small a sample to be used in the discriminant analysis procedure.

Table 2, in addition to reporting the cultures in the sample, indicates the percentage of the boys who were participators. In 137 boys, sixty-five were participators, i.e. forty-seven per cent. In the non-Canadian sample of thirty-three boys, fifteen or forty-five per cent were participators. Considering the broadness of the base on which participation or non-participation in organized team sports was determined, this percentage of young boys who are participating in team sports seems low.

The present chapter has reported the results of the study, and the relationship of these results to the hypotheses. The following chapter is a summarizing and concluding chapter. A discussion of the principal findings and conclusions, and suggestions for further research are presented.

CHAPTER V

SUMMARY, CONCLUSIONS AND DISCUSSION

SUMMARY

The purpose of this research was to study the reasons why some young boys participate in team sports and others do not. The study method chosen was designed to determine differences in selected personality variables between two groups of nine year old boys, categorized according to their extent of participation in team sports. In addition, the subjects were measured on five other variables to determine the extent of importance of these variables to participation in team sports.

Data were collected on the IPAT Children's Personality Questionnaire (CPQ), a Parent's Questionnaire and a Questionnaire for Children designed for this study, and the Blishen Occupational Class Scale. In addition, school records provided data on intelligence, ordinal position and religious affiliation.

The data were subjected to a simple analysis of variances to determine significant differences between participants and non-participants for the twenty-one variables measured. A multiple discriminant analysis was computed to identify the significant variables which discriminated between the two groups. A stepwise regression was performed to determine the predictor variables and their importance to

the predictability of sports participation.

The results indicate that there are significant personality differences between participators and non-participators and that the parents' interest in sports, the intelligence of the child, and the socio-economic level of the family are significantly different for the two groups.

CONCLUSIONS AND DISCUSSION

The main conclusions to be drawn from this research can best be illustrated by reference to Table 13 which compares the significant findings of the three analyses performed. The table illustrates that the three methods of analyses produce a striking similarity in that the same four of the twenty-one variables tested are significant at the .05 level or beyond for each analysis.

Variables 21, 1, 18 and 2 are significant variables in each analytical result. When analyzed independently by analysis of variance, these four variables were significant at the .05 level or beyond. They were heavily weighted factors in causing the separation of the two groups by the multiple discriminant analysis. In the stepwise regression, these four variables contribute most significantly at the .05 level to the prediction of participation in sports. Together, the four factors contribute twenty-two per cent of the variability. It is apparent, then, that these four factors are the most significant factors of those studied in differentiating between participators and

non-participants.

Variables 20 and 17 (when combined with 21, 1, 18 and 2) contribute a fair amount to the prediction of sports participation; are heavily weighted and contribute a large amount to the separation of the groups when all variables are considered, yet individually, on a univariate analysis they are not significant factors.

Variables 16 and 4 (Factor J and I.Q.) are each significant when analyzed individually, but when correlations with the other variables are taken into consideration, they are not important in predicting group membership.

The conclusions that can be drawn from these results are the following.

CONCLUSION ONE

There is a difference in the personality factors between nine year old boys who participate in team sports and nine year old boys who do not participate in team sports.

The four personality factors from the CPQ (in which minus indicates to the left of the bi-polar continuum, and plus indicates to the right) which are shown to be significantly different, and the characteristics which the participants tend to exhibit when compared to non-participants, are shown below:

Factor O (-)	more self-confident and cheerful (less anxious)
Factor J (-)	more vigorous, liking group action

Factor Q4	(-)	more composed, relaxed
Factor N	(+)	more shrewd, socially per- cipient and skillful.

It is interesting to note that clinically, Factor O is important in making one of the largest contributions to the second order anxiety factor. High O suggests need for careful handling of emotional problems. Porter and Cattell (1959) state that "High O factor ... with the C factor, ... is the factor which most distinguishes neurotics ... from normals (p. 35)."

The research studies that have been done on the personality profiles of sports participators have concentrated on those who were known to be athletes or considered to be superior athletes. Other studies have concentrated on those who were engaged in a particular sport. On the other hand, this study has been particularly directed at the young boy, before he has 'specialized', to determine whether boys who are interested in team sports have a different personality than boys who are not interested in team sports. The paucity of research in the area of general sports interest by young children suggested the particular direction which this study has taken.

Comparison of this study to existing research is difficult because of the different emphases as outlined above. However, one important comparison can be made which is worthy of further study. This study showed that nine year old sports participators are significantly less anxious

than non-participants. Some existing research indicates that older athletes are more anxious than non-athletes.

Vanek and Cratty (1970) in summarizing foreign studies done on this subject suggest that the superior athlete is not usually content, but instead may display aggressions and neurotic tendencies which he may be attempting to reconcile through sport. Booth (1958) found in his study that high school athletes were higher in anxiety and dominance than non-athletes. Slusher (1964) studied high school athletes and found that hypochondria was higher for all athletes.

One wonders what causes the change? Could it be merely maturation, or could it possibly be the demands of the sport itself? This is a question which seems worthy of more research.

Further, the present study indicates that all of the significant differences in personality variables between the participants and the non-participants seem to be in the more desirable direction for the participants. They seem to have more self-confidence, are more vigorous, are more composed and relaxed, and more socially skillful. Seymour's study (1956) seems to support this finding that young boys in sports seem to be well adjusted and socially acceptable. Seymour found in his study with ten to eleven year old Little League boys that they were more socially acceptable than non-participants. He concluded that the participating group possessed a "higher degree of desirable traits" both

prior and subsequent to participation in Little League programs.

On the basis of this study, it might be well for teachers and physical educators to consider the difficulty that non-participants may have in fitting into the regular school athletic program, realizing that, in fact, they are a less vigorous, less confident, more tense and more sensitive group than the participants.

CONCLUSION TWO

There is a significant difference in the sports' interests between parents of participating boys and parents of non-participating boys. Participating boys have parents who are significantly more interested in sports than the parents of non-participating boys. It is not surprising to think that if parents are interested in sports and have been active as children and possibly as adults, they will reflect this interest to their children who in turn will become interested in sports.

Bandura (1964) says that the father can easily direct the son's behavior. He may mold his interest, hobbies, athletic participation, occupational choice and many other aspects of his social behavior. This takes place by means of modelling, imitation and identification.

The result that was unexpected is for the mother's interest in sports to be more significant to her son's participation than the father's. This probably supports

Mussen's (1970) contention that the mother particularly has immediate and enduring impact on the development of the young child's personal characteristics. The study shows that the combined interests of both parents have more influence than either one separately, probably because one parent reinforces the other.

In this study, parents' interest was one of the most difficult measurements to be made, because it depended entirely on the understanding and honesty of the parents who completed the questionnaire.

Parents' sports interests, then, are very significant in affecting children's sports participation. Parents may not be aware of this relationship, and may need some enlightenment concerning this area of child growth.

CONCLUSION THREE

There is a significant difference in the family socio-economic levels of nine year old boys who participate in sports, and nine year old boys who do not participate in sports. Boys who participate in sports tend to come from a higher socio-economic level than non-participants. In this study, the mean of the non-participants was at the 49.17 level of the Blishen Scale which has a range from 32.0 (hunters and trappers) to 90.0 (judges). The mean of the participants was 54.45. This trend was anticipated.

In such an affluent society, in which sports and physical fitness are being emphasized on all sides, it seems

obvious that the higher socio-economic groups will be better able to meet the expenses of uniforms, equipment, club membership, etc. The research indicates that different socio-economic classes tend to have different sets of values, which the children in these classes presumably learn from their parents. It seems possible that parents from higher socio-economic classes tend to value and be anxious for good health and social approval through sporting activities. It also seems possible that children from the lower socio-economic levels may not be sports participators because of the attitudes expressed above, or because they literally do not have the money required.

Further research in these directions might be of considerable value, since it would be of societal concern whether non-participation was largely due to lack of funds rather than parents' attitude.

CONCLUSION FOUR

There is no significant relationship between the participation of nine year old boys in team sports and in their religious affiliation. It was considered possible that in a Catholic home, the parents would tend to be more authoritarian in their child-rearing practises and that this in turn might lower the participation level of the child. Home environment was not a variable tested in this study, but it was felt that if there were a difference in the child-rearing practises of the two types of homes (Catholic

and non-Catholic), this might be reflected in the lower participatory role of Catholic children. This did not occur.

As a matter of fact, there was more opportunity for the Catholic boys to participate in sports because, in each separate school visited, the boys had an opportunity of joining not only the Community League programs, but also the sports programs offered through the local parish.

CONCLUSION FIVE

There is a significant difference in the intelligence of nine year old boys who participate in team sports and those who do not. Participators are significantly more intelligent than non-participators. Research studies indicate some conflicting evidence on this issue. Slusher (1964) found that intelligence was significantly lower for all athletic groups when compared to non-athletic groups. One of Vanek's studies (1970) found that athletes were more intelligent than non-athletes.

The author expected that intelligence would be positively related to the socio-economic level of the family. However, the correlation of these two factors was only .1659.

It is not understood why participators should be more intelligent than non-participators, although Cordts (1960) indicates that there may be some relationship between physical fitness and academic performance.

CONCLUSION SIX

There is no significant relationship between the ordinal position of the child in the family constellation and his participation in sports. Based on Adler's theory, one would have suspected that the youngest child in the family would have been more likely to have been a sports participator. This is not borne out in this study. The limited research in this area expresses conflicting results.

In summary, this study finds that boys who participate in team sports tend to be significantly different than boys who do not participate in team sports, along the following dimensions:

1. They tend to have parents who are interested in sports (the mothers' interest is more influential than the fathers').
2. They tend to come from a higher socio-economic background.
3. They tend to be more intelligent.
4. They have a different personality profile.

SUGGESTIONS FOR FURTHER RESEARCH

The following are possibilities for future research which have been suggested as a result of the present study.

1. The apparent change in the anxiety level between nine year old children in this study and older athletes studied by Booth, Slusher, Vanek and Cratty should be

investigated (See Conclusion 1, page 102).

2. Further research into the reasons for lower sports participation by lower socio-economic level children is necessary (See Conclusion 2, page 105).

3. More research seems to be indicated into the relationship between intelligence and sports participation (See Conclusion 5, page 108).

4. Stepwise regression analysis showed that the twenty variables tested accounted for thirty-two per cent prediction of the variance of the criterion. Research into other variables which might be higher predictors might be worthwhile.

5. A longitudinal study using the same sample, repeated five or ten years from now might give interesting insights into any changes in personality profile, or changes in degree of sports participation, and might well answer Robert Singer's (1969) provocative question: "Is the personality profile the cause of or the result of athletic experience?"

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SELECTED REFERENCES

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APPENDIX A

OPPORTUNITIES FOR SPORTS THROUGH
THE SCHOOL

OPPORTUNITIES FOR SPORTS THROUGH THE SCHOOL

SCHOOL _____

Community District _____

Address _____

Principal _____

1. Does the Community League in which your school is situated offer the children this year (specifically Grade 4's) the following sports?

Hockey _____
Little League Baseball _____
Soccer _____
Any other Team Sport _____

2. Did it offer the same opportunities to the school children (specifically Grade 3's) last school year?

Hockey _____
Little League Baseball _____
Soccer _____
Any other Team Sport _____

3. Do the notices of registration dates, games, etc. come through the school - i.e. either written notices or notices announced through the P. A. System?

4. Does your School offer your pupils in Grade 4 any opportunity to join organized team sports that play regularly throughout the season (other than physical education programs)?

5. Does any other agency or group approach your Grade 4 pupils through the school to offer them team sports?

APPENDIX B

QUESTIONNAIRE FOR CHILDREN

QUESTIONNAIRE FOR CHILDREN

FORM A SPORTS INTERESTS

If you answered YES to the question "Did you join any team sports this year or last year?" please answer the questions below

NAME _____

ADDRESS _____

AGE _____ BIRTHDATE _____ GRADE _____

HOW MANY CHILDREN ARE THERE IN YOUR FAMILY? _____

HOW MANY ARE OLDER THAN YOU? _____

1. What organized team sports have you joined this year (since you started Grade 4 in September)? Put a check mark beside those that you have joined and played in regularly.

Hockey _____
Soccer _____
Skiing _____
Swimming _____

2. What organized team sports did you join last year (when you were in Grade 3 and during the summer months)?

Hockey _____
Soccer _____
Skiing _____
Swimming _____
Little League _____
Baseball _____

3. I like to play on team sports because: (Check the answer(s) that suit you best).

a. because I am with my friends when I play _____
b. because it is exciting and thrilling _____
c. because I forget about my problems when I am playing _____
d. because it makes me feel healthy _____
e. because I like to work hard _____
f. other reasons _____

QUESTIONNAIRE FOR CHILDREN

FORM B OTHER INTERESTS

If you answered NO to the question "Did you join any team sports this year or last year?" please answer the questions below.

NAME _____

ADDRESS _____

AGE _____ BIRTHDATE _____ GRADE _____

HOW MANY CHILDREN ARE THERE IN YOUR FAMILY? _____

HOW MANY ARE OLDER THAN YOU? _____

1. What do you enjoy doing most in your spare time? Please check the answer that is right for you.

Watching T.V. _____

Reading _____

Hobbies: _____

Stamps _____

Models _____

Woodwork, etc. _____

Playing with _____

Friends _____

Others: _____

(Please List) _____

2. Do you like sports that aren't organized into teams and that you don't have to attend regularly?

YES _____ NO _____

3. Name the two sports that you like the best and why you like them.

1. _____

2. _____

APPENDIX C

LETTER TO PARENTS



January 12, 1972

Dear Mr. and Mrs.

I have been given permission by the Principal of your School to carry on a research project concerning the sports interests of boys in Grade 4. The task assigned to each boy will be a five minute questionnaire about his sports interests, and a simple questionnaire on his activities and attitudes toward these activities. All information given in the questionnaires will be held in strictest confidence.

We would appreciate your allowing your boy to participate in this study at school. Please fill in the form at the bottom of this letter and return to me as soon as possible since the study is to start in late January. I think your son will find the project interesting and worthwhile.

I am enclosing two copies of a short questionnaire concerning your interests in sports. Would you both please fill in separate forms and return them to me, along with the permission slip, in the self-addressed envelope which is enclosed. Please have your son deliver the envelope to his teacher.

Thank you very much for the time you will take in filling out this form. I appreciate your cooperation. The Supervisor for my thesis is Dr. J. Chambers, Associate Professor, Department of Educational Psychology at the University of Alberta.

(Mrs. H. S. Ragan),
Graduate Student,
Department of Educational Psychology,
University of Alberta

PERMISSION SLIP for _____ (name of student)

_____ May take part in the study
_____ May not take part in the study

Signature of Parent

PLEASE RETURN THIS FORM AND COMPLETED QUESTIONNAIRE TO THE
SCHOOL AS SOON AS POSSIBLE

APPENDIX D

PARENTS' QUESTIONNAIRE

PARENTS' QUESTIONNAIRE

NAME: _____

What is your occupation? _____

In what Country were you born? _____

I would like to find out about your interests in sports and your activity in team sports when you were a child. By "organized team sports" I mean team sports in which regular practises and games are held, and are normally outside of school time. Examples might be hockey, basketball, football, swimming, volleyball, skiing team, etc.

1. Did you play in organized team sports when you were a youngster in primary or junior level (age 6-14)?
YES _____ NO _____ If YES, list sports and Grades _____

2. Did you play in organized team sports during your high school years? YES _____ NO _____ If YES, list sports and Grades _____

3. Did you play in organized team sports after your high school years? YES _____ NO _____ If YES, list sports and years played _____

4. Have you played in an organized team sport since you have been a parent? YES _____ NO _____ IF YES, list sports and years played _____

5. Have you, since being a parent, been
a coach _____ a referee _____ sports organizer _____

6. Have you in the past or do you presently help in any way with the team sports in which your son is involved?
driving the team _____ phoner _____ canvasser _____

7. Does your son participate in any team sports now?
YES _____ NO _____ If YES, what sports? _____

8. Do you wish that he would participate
more _____ less _____ the same _____

9. Do you attend professional games of sport? (like
hockey, football, etc.)
usually_____ sometimes_____ seldom_____
10. Do you watch sports events on T.V.?
usually_____ sometimes_____ seldom_____

THANK YOU FOR FILLING OUT THIS QUESTIONNAIRE

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